OMRON

MOS FET Relay General Catalog G3VM Series

A wide range of contact forms and functions Over 180 different models available



What's NEW!

The Very small package "S-VSON series" is now available Expansion of the package "DIP/SOP" with High-current and Low-ON-resistance Type Expansion of the Package "SOP" with General-purpose Type

To the customer who buys Omron products

Warranty and Limited Warranty

(As of September, 2015. Please check Omron Corporation's homepage for the latest version of Terms and Conditions.)

Thank you for using Omron Corporation ("Omron") products. The Terms and Conditions hereunder are applied to Omron products regardless of where they are purchased. When you place an order, you are expected to agree to the Terms and Conditions described below.

1. Definition

The definition of terms used in these Terms and Conditions are as follows:

- (1) Omron products: FA system equipment, general-purpose control devices, sensors, and electronic/mechanism components under Omron brand
- (2) Catalogues: Omron general catalogue, FA system equipment general catalogue, safety component general catalogue, electronic/mechanism components general catalogue and other catalogues, specifications, instructions and manuals of Omron products, including electronically provided information available on the Omron electronic components information website, etc.
- (3) Usage conditions: Usage conditions, rating, performance, operating environment, handling instructions, cautions, prohibited use, etc. of Omron products described in catalogues.
- (4) Customer application: Application of Omron products by customers which include embedding and/or using Omron products in their parts/components, electronic substrates, devices, equipment or systems manufactured by customers.
- (5) Fitness: (a) fitness, (b) performance, (c) non-infringement of third-party intellectual property, (d) compliance with laws and regulations and (e) conformity to standards.

2. Caution on Descriptions

Attention is required to the following points on descriptions in catalogues.

- (1) Rated values and performance values are the product of tests performed for separate single conditions, including but not limited to temperature and humidity. It is not intended to warrant rated values and performance values for multiple combined conditions.
- (2) Reference data are provided for reference only. Omron does NOT warrant that Omron products work properly at all time in the range of reference
- (3) Application examples are provided for reference only. Omron does NOT warrant the fitness of Omron products under such application.
- (4) Omron may discontinue the production of Omron products or change the specifications of them for the purpose of improving such products or other reasons entirely at its own discretion.

3. Precautions

Please be aware of and accept the following when you introduce or use Omron products:

- (1) Please use Omron products in compliance with usage conditions including rating and performance.
- (2) Please confirm fitness of Omron products in your application and use your own judgment to determine the appropriateness of using them in such application. Omron shall not warrant the fitness of Omron products in customer application.
- (3) Please confirm that Omron products are properly wired and installed for their intended use in your overall system.
- (4) When using Omron products, please make sure to (i) maintain a margin of safety vis-à-vis the published rated and performance values, (ii) design to minimize risks to customer application in case of failure of Omron products, such as introducing redundancy, (iii) introduce system-wide safety measures to notify risks to users, and (iv) conduct regular maintenance on Omron products and customer application.
- (5) Omron products are designed and manufactured as general-purpose products for use in general industrial products. They are not intended to be used in the following applications. If you are using Omron products in the following applications, Omron shall not provide any warranty for such Omronproducts. Even in the case of the following applications to elevator/lift equipment and medical devices, etc, some case are likely applied to an usual guarantee prescribed on next article as general-purpose products used for general industrial products. So, please contact our sales person in charge.
 - (a) Applications with stringent safety requirements, including but not limited to nuclear power control equipment, combustion equipment, aerospace equipment, railway equipment, elevator/lift equipment, amusement park equipment, medical equipment, safety devices and other applications that could cause danger/farm to people's body and life.
 - (b) Applications that require high reliability, including but not limited to supply systems for gas, water and electricity, etc., 24 hour continuous operating systems, financial settlement systems and other applications that handle rights and property.
 - (c) Applications under severe conditions or in severe environment, including but not limited to outdoor equipment, equipment exposed to chemical contamination, equipment exposed to electromagnetic interference and equipment exposed to vibration and shocks.
 - (d) Applications under conditions and environment not described in catalogues
- (6) In addition to the applications listed from (a) to (d) above, Omron products are not intended for use in automotive applications (including two wheel vehicles). Please do NOT use Omron products for automotive applications. Please contact Omron sales staff for products for automotive use.

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The terms and conditions for warranty of *Omron products* are as follows:

- (1) Warranty period: One year after the purchase from Omron or Omron's agency.
- (2) Coverage: *Omron* will provide either of the following two services for the malfunctioning *Omron products* at its own discretion:
 - (a) Free repair of malfunctioning Omron products at an Omron maintenance service location (Repair service is not available for electronic/mechanism parts.), or
 - (b) Free replacement of the malfunctioning Omron products with the same number of replacement/alternative products.
- (3) Exceptions: Omron will not cover Omron products under its warranty if the cause of the malfunction falls under any of the following:
 - (a) Usage in a manner other than the original intended use for the Omron products.
 - (b) Usage outside of the usage conditions.
 - (c) Modification or repair made to the Omron products by other than Omron personnel.
 - (d) Software program embedded by other than Omron or usage of such software.
 - (e) Causes which could not have been foreseen with the level of science and technology at the time of shipping from *Omron*.
 - (f) Causes originating from other than Omron or Omron products (including force majeure such as but not limited to natural disasters).

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(EC300E)

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MOS FET Relay General Catalog 2018

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| Models with Standards Certification | |
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Using this Catalog



There are the following three ways to search for products in this catalog.



Recommended products are listed by typical industries and applications, such as security or communications, or by typical functions.

You can select products based on applications or functions.

Application Examples
MISTER Relay Application

Teach Street Relation

Searching by Product Feature
Products are classified by features, such as

Products are classified by features, such as general purpose or small with high dielectric strength.

You can select products for each application based on product features.



Searching by Product Model Number

The products are listed in a product index.

You can select products by model number while checking specifications, such as the rated voltage or continuous load current.



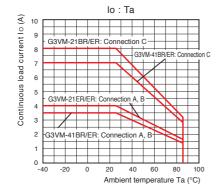
Improved Features of the MOS FET Relay General Catalog

Similar models are grouped together so that you can select models while comparing detailed performances.

Examples

Continuous load current vs.
Ambient temperature

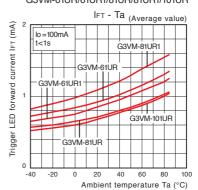
G3VM-21BR/21ER/41BR/41ER



●Trigger LED forward current vs. Ambient temperature

P.8

G3VM-61UR/61UR1/81UR/81UR1/101UR



OMRON Electronic Components Website

Website

www.omron.com/ecb/



OMRON Electronic Components Web *OMRON E-WEB*

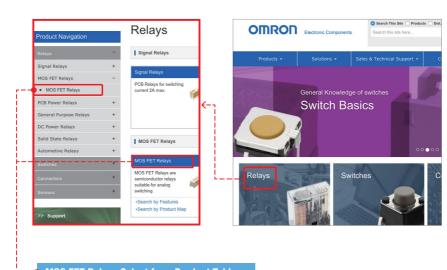
OMRON Electronic Components



This website is dedicated to OMRON electronic components.

You can search for products based on model numbers, specifications, or product category.

The convenient interface also lets you view new product information and all of our services. Note: The contents of this website are subject to change.



MOS FET Relay Select from Product Table

Please select MOSFET relay by checking the necessary items.



MOS FET Relays: G3VM Features

G3VM Relays will help you downsize and reduce the energy consumption of a wide range of equipment.

Ultra Small Size and Weight

In addition to the SSOP and USOP, we have introduced the ultra-compact VSON and S-VSON packages, contributing to downsizing of equipment.

Low driving current

Realizing energy saving with standard driving current of 2 to 15mA. Ultrasensitive models are also available featuring Drive Currents as low as 0.2 mA (max).

Long operating life

MOS FET Relays use light signal instead of moveable contacts; avoiding reduction of life caused by contact wear, substantially increasing operational life

Small leakage current

Can withstand external surge current without addition of snubber circuit. Under normal conditions, the typical leakage current is about 1 nA or below.

Excellent shock resistance

All the internal parts use casting method, and there is no movable parts in it, so it has excellent shock and vibration resistance.

High Insulation

MOS FET relays offer great I/O isolation due to its operational principle. It turns the voltage into the light and transfers by the light signal; Therefore input and output are isolated. The standard models offer 2,500 Vrms between input and output. Superior 5,000 VAC products are also available. 3,750 VAC products have also been added to the SOP package series.

Silent operation

As MOS FET Relays do not have mechanical contacts, by using a MOS FET instead of an electromechanical relay, it is possible to eliminate switching noise in your applications.

High-speed switching

Comparing with the switching time of 3 to 5 ms of a mechanical relay, its switching time is shortened to 0.2 ms(SSOP, USOP, VSON). Achieving quick response performance.

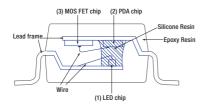
Control the micro analog signal correctly

Comparing with the triac, MOS FET greatly reduces the dead zone. The input waveform of micro analog signal does not suffer distortion as it does with a triac and is basically converted into output waveform without distortion.



Structure and operational principle of MOS FET relays

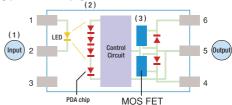
[Internal structure]



MOS FET relay consists of the following three components:

- (1) LED (light emitting diode)
- (2) Photodiode dome array (PDA)
- (3) MOS FET

[Operational Principle]



- (1) The LED lights up when the current is connected at the input side.
- (2) The light sent by the LED will be converted into voltage when it is received by the Photodiode dome array.
- (3) This voltage will be the gate voltage to drive the MOS FET via control circuit.

Application Examples

MOS FET Relay Application Examples

Security Equipment

 Smoke detector/Home security panel/PIR/ Video intercom systems



| Function | Features / Recommended products | | Page |
|---|---------------------------------|---|--------------------------|
| | General purpose | G3VM-61VY3 G3VM-351VY | 68 82 |
| Status output Signal output | Ultrasensitive | G3VM-61G2 | 68 |
| oignai surput | 1b (SPST-NC) | G3VM-63G G3VM-353G | 68 82 |
| Switching power supply of small solenoid valve, small light | High curren | G3VM-61VR G3VM-61CR1/FR1 G3VM-201CR/FR G3VM-601CR/FR | 127 121 121 121 |
| External output | High dielectric strength | G3VM-61AY1/DY1 G3VM-351AY1/DY1 | 147 |

FA/Industrial Equipment

 Machine tool/Customized power supply/Factory automation (PLC/Thermostat/Timer)



| Function | Features / R | Features / Recommended products | |
|---|--------------------------|---|--------------------------|
| Status output Signal output | General purpose | G3VM-61VY3 G3VM-61A1/D1 G3VM-351VY G3VM-351A/D | 68 62 82 62 |
| Switching power supply of small solenoid valve, small motor | High current | G3VM-61VR G3VM-61CR1/FR1 G3VM-201CR/FR G3VM-601CR/FR | 127 121 121 121 |
| External output | High dielectric strength | G3VM-61AY1/DY1 G3VM-351AY1/DY1 | 147 |

Test & Measurement Equipment

Semi-conductor test equipment(ATE)/
 Semi-conductor test equipment Interface board/
 Tester for cars/PXI module/Data logger/ I/O board



Communication Equipment

 Modems, Fax machines, network devices, and PBX transfer devices



| Function | Features / Re | ecommended products | Page |
|------------------------------|--------------------|--------------------------|----------|
| Short-circuit line switching | General purpose | G3VM-61VY3 G3VM-351VY | 68 82 |
| Line switching | 1b (SPST-NC) | G3VM-63G G3VM-353G | 68 82 |

Energy-related Equipment

 BMS's (business management systems), power meters, smart meters, secondary power supplies, and photovoltaic systems



| ٠, | | | | |
|----|---|-----------------------------|--|----------|
| | Function | Features / R | Features / Recommended products | |
| | External communications Charge voltage monitoring | High dielectric strength | G3VM-61AY1/DY1 G3VM-351AY1/DY1 G3VM-601AY1/DY1 | 147 |
| | | General purpose | G3VM-61VY3 G3VM-351VY | 68 82 |
| | Storage battery charging | High current | G3VM-61CR1/FR1 | 121 |

Amusement Equipment

Currency Sensing Modules
 Coin dispenser / Information system



| Function | Features / Recommended products | | Page |
|---------------|---------------------------------|--------------------------|----------|
| Status output | General purpose | G3VM-61VY3 G3VM-351VY | 68 82 |
| Signal output | 1b (SPST-NC) | G3VM-63G G3VM-353G | 68 82 |

Medical Equipment

Office automation/AV Equipment

Broadcasting Equipment

Features by Product Type

Product Lineup by MOS FET Relay Type

General-purpose Type

Best-selling products suitable for various applications Ideal for AC/DC load, Micro analog signal.

| DIP Relay Series | P.62 |
|---|------|
| SOP 4-pin Relay Series with Load Voltage of 60 V | P.68 |
| SOP 4-pin Relay Series with Load Voltage of 80 V | P.73 |
| SOP 4-pin Relay Series with Load Voltage of 200 V | P.77 |
| SOP 4-pin Relay Series with Load Voltage of 350 and 400 V | P.82 |
| SOP 6 -pin Relay Series | P.88 |

High-dielectric-strength Type

These MOS FET Relays come in DIP 6-pin packages and achieve a dielectric strength of 5,000 VAC between I/O.



| ay Series with Load Voltage of 400/600 V | P.155 | |
|--|-------|--|

High-load-voltage Type

These MOS FET Relays come in SOP 4-pin packages and are for high load voltages.



| Dalan Carias with Land Vallage of COO V | P.94 |
|---|------|
| Relay Series with Load Voltage of 600 V | P.94 |

Current-limiting Type

These MOS FET Relays protect themselves from overcurrents with a current-limiting protection function.



Multi-contact-pair Type (2a, 2b, and 1a1b)

These MOS FET Relays provide multiple contact pairs (2a (DPST-NO), 2b (DPST-NC), and 1a1b (SPST-NO/SPST-NC)) for a wide range of circuits.



| DIP 8-pin Relay Series | P.98 |
|------------------------|-------|
| SOP 8-pin Relay Series | P.104 |

Low-output-capacitance and Low-ON-resistance Type (with Low $C \times R$)

Ideal for semi-conductor test equipment. low C (capacitance between terminals) × R (output on-resistance) type.



Models are also available that give priority to a low C or a low R.

| SOP 4-pin Relay Series | P.165 |
|---|-------|
| SSOP Relay Series with Load Voltage of 20 V | P.170 |
| SSOP Relay Series with Load Voltage of 40 V | P.175 |
| USOP Relay Series with Load Voltage of 20 V | P.180 |
| USOP Relay Series with Load Voltage of 40, 50 V | P.185 |
| VSON Relay Series with Load Voltage of 20 V | P.190 |
| VSON Relay Series with Load Voltage of 50 V | P.195 |
| S-VSON Relay Series (New small package) | P.200 |

High-current and Low-ON-resistance Type

These MOS FET Relays achieve the low ON resistance and high switching capacity of a mechanical relay



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|---|-------|
| DIP 4-pin Relay Series | P.110 |
| DIP 6-pin Relay Series | P.115 |
| DIP8-pin Relay Series | P.121 |
| SOP 4-pin Relay Series | P.127 |
| SOP 6-pin Relay Series | P.131 |
| S-VSON Relay Series (New small package) | P.143 |

Small and High-dielectric-strength Type

Dielectric Strength between I/O 5,000 Vrms with small DIP4.



Models with high sensitivity are also available

| 2 · p rotal cortos | DIP 4-pin Relay Series | P.147 |
|--------------------|------------------------|-------|
|--------------------|------------------------|-------|

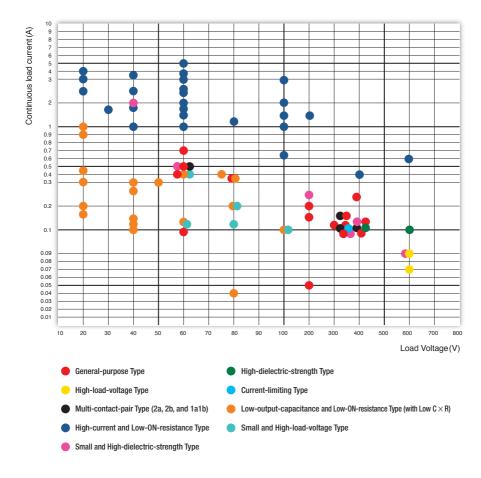
Small and High-load-voltage Type

These ultra-compact MOS FET Relays are for high load voltages.



| SSOP Relay Series with Load Voltage of 60, 80, and 100 V | P.204 |
|--|-------|
| USOP Relay Series with Load Voltage of 60, 75, 80, and 100 V | P.208 |
| VSON Relay Series with Load Voltage of 60, 80, 100V | P.213 |

Product Map by features



Product Index

■DIP (Dual Inline Package)

| 20 G3VM-21AR/DR 4 1a 3000 0.04 1000 300 20 G3VM-21BR/ER 6 1a 4000 (8000) *1 0.02 1000 100 40 G3VM-41AY/DV 4 1a 2000 0.09 1000 30 40 G3VM-41AY/DY 4 1a 2000 0.09 1000 30 40 G3VM-41AP/DR 4 1a 2500 0.05 1000 30 40 G3VM-41BR/ER 6 1a 3500 (7000) *1 0.03 1000 100 60 G3VM-61A1/D1 4 1a 500 1 1000 103 | 000 5 0 5 0 5 0 5 | 1 1 1 | 2500 2500 5000 | 110 |
|---|----------------------------|-------------|----------------------|----------|
| 40 G3VM-41AY/DY 4 1a 2000 0.09 1000 30 40 G3VM-41AY/IDY1 4 1a 2000 0.09 1000 30 40 G3VM-41API/DR 4 1a 2500 0.05 1000 30 40 G3VM-41BPI/ER 6 1a 3500 (7000)*1 0.03 1000 10 60 G3VM-61A1/D1 4 1a 500 1 1000 13 | 0 5 0 5 0 5 | 1 | | |
| 40 G3VM-41AY1/DY1 4 1a 2000 0.09 1000 30 40 G3VM-41AR/DR 4 1a 2500 0.05 1000 30 40 G3VM-41BR/ER 6 1a 3500 (7000) *1 0.03 1000 100 60 G3VM-61A1/D1 4 1a 500 1 1000 13 | 0 5 | 1 | 5000 | 115 |
| 40 G3VM-41AR/IDR 4 1a 2500 0.05 1000 30 40 G3VM-41BR/ER 6 1a 3500 (7000) *1 0.03 1000 100 60 G3VM-61A1/D1 4 1a 500 1 1000 131 | 0 5 | | | 147 |
| 40 G3VM-41BR/ER 6 1a 3500 (7000)*1 0.03 1000 100 60 G3VM-61A1/D1 4 1a 500 1 1000 130 | | | 5000 | 147 |
| 60 G3VM-61A1/D1 4 1a 500 1 1000 13 | 00 5 | 1 | 2500 | 110 |
| | | 1 | 2500 | 115 |
| | 0 2 | 0.5 | 2500 | 62 |
| 60 G3VM-61AY/DY 4 1a 500 0.6 1000 138 | 0 1 | 1 | 5000 | 147 |
| 60 G3VM-61AY1/DY1 4 1a 500 0.6 1000 13 | 0 3 | 1 | 5000 | 147 |
| 60 G3VM-61AR/DR 4 1a 2000 0.08 1000 25 | 0 5 | 1 | 2500 | 110 |
| 60 G3VM-61B1/E1 6 1a 500 (1000) *1 1 1000 130 | 0 2 | 0.5 | 2500 | 62 |
| 60 G3VM-61BR/ER 6 1a 2500 0.065 10 400 | | 0.4 | 2500 | 115 |
| 60 G3VM-61BR1/ER1 6 1a 3000 (6000) *1 0.04 1000 100 | | 1 | 2500 | 115 |
| 60 G3VM-61CR1/FR1 <u>NEW</u> 8 1a 5000(10000)*1 0.022 10000 850 | | 1 | 2500 | 121 |
| 60 G3VM-62C1/F1 8 2a 500 1 1000 13 | | 0.5 | 2500 | 98 |
| 100 G3VM-101AR/DR 4 1a 1000 0.25 1000 20 | | 1 | 2500 | 110 |
| 100 G3VM-101BR/ER 6 1a 2000 (4000) *1 0.1 1000 100 | | 1 | 2500 | 115 |
| 100 G3VM-101CR/FR <u>NEW</u> 8 1a 3000(6000)*1 0.06 1000 72 | | 1 | 2500 | 121 |
| 200 G3VM-201AY/DY 4 1a 250 5 1000 90 | | 1 | 5000 | 147 |
| 200 G3VM-201AY1/DY1 4 1a 250 5 1000 90 | | 1 | 5000 | 147 |
| 200 G3VM-201CR/FR NEW 8 1a 1500(3000)*1 0.25 1000 400 | | 1 | 2500 | 121 |
| 350 G3VM-351AY/DY 4 1a 100 35 1000 30 | | 1 | 5000 | 147 |
| 350 G3VM-351AY1/DY1 4 1a 100 35 1000 30 | | 1 | 5000 | 147 |
| 350 G3VM-2L/2FL 4 1a 120 *2 22 1000 40 | | 1 | 2500 | 159 |
| 350 G3VM-351A/D 4 1a 120 35 1000 30 | | 1 | 2500 | 62 |
| 350 G3VM-353A/D 4 1b 150 15 1000 85 | | 3 | 2500 | 62 |
| 350 G3VM-351B/E 6 1a 120 (240) *1 35 1000 30 | | 1 | 2500 | 62 |
| 350 G3VM-353B/E 6 1b 150 (300) *1 15 1000 85 | | 3 | 2500 | 62 |
| 350 G3VM-355CR/FR 8 1a1b 120 15 1000 65 350 G3VM-352C/F 8 2a 120 35 1000 30 | | 3 | 2500 2500 | 98 98 |
| 350 G3VM-352C/F 8 2a 120 35 1000 30 350 G3VM-WL/WFL 8 2a 120 2 2 1000 40 | | 1 | 2500 | 159 |
| 350 G3VM-WEIWPE 8 22 120 2 22 1000 40 350 G3VM-354C/F 8 2b 150 15 1000 85 | | 3 | 2500 | 98 |
| 400 G3VM-401A/D 4 1a 120 18 1000 40 | | 1 | 2500 | 62 |
| 400 G3VM-401A/D 4 1a 120 18 1000 40 | | 1 | 5000 | 147 |
| 400 G3VM-401AY1/DY1 4 1a 120 22 1000 80 | | 1 | 5000 | 147 |
| 400 G3VM-401B/E 6 1a 120 (240) *1 17 1000 40 | | 1 | 2500 | 62 |
| 400 G3VM-401BY/EY 6 1a 120 (240) *1 17 1000 40 | | 1 | 5000 | 155 |
| 400 G3VM-401BY/EY 8 1a 400(800)*1 3 1000 410 | | 1 | 2500 | 121 |
| 400 G3VM-401CH/FH NEW 8 1a 400(600) 1 3 1000 410 | | 1 | 2500 | 98 |
| 600 G3VM-601AY/DY 4 1a 90 45 1000 75 | | 1 | 5000 | 147 |
| 600 G3VM-601AY1/DY1 4 1a 90 45 1000 75 | | 1 | 5000 | 147 |
| 600 G3VM-601BY/EY 6 1a 100 (200) *1 30 1000 120 | | 1 | 5000 | 155 |
| 600 G3VM-601CR/FR <u>NEW</u> 8 1a 600(1200)*1 1.3 10000 430 | | 1 | 2500 | 100 |

*1 Load current in case of connection C is shown in parentheses (DC load only) *2 Current-Limiting function (Limit current 150 mA Min. 300 mA Max.)

■SOP (Small Outline Package)

| Load Voltage (V) Max. | Model | | Number of terminals | Contact form | Continuous load current (mA) Max. | Maximum resistance with output ON (Ohm) Typ. | Current leakage when the relay is open (nA) Max. | Capacitance between terminals (pF) Typ. | Turn-ON time (ms) Max. | Turn-OFF time (ms) Max. | Dielectric strength between I/O (Vrms) | Page |
|-----------------------------|---------------------|------------|---------------------|-----------------|-----------------------------------|--|---|--|---------------------------|-------------------------------|---|------|
| 20 | G3VM-21GR | | 4 | 1a | 160 | 5 | 1 | 1 | 0.5 | 0.5 | 1500 | 165 |
| 20 | G3VM-21GR1 | | 4 | 1a | 300 | 1 | 1 | 5 | 0.5 | 0.5 | 1500 | 165 |
| 20 | G3VM-21HR | | 6 | 1a | 2500 (5000) *1 | 0.02 | 10 | 1000 | 5 | 1 | 1500 | 131 |
| 30 | G3VM-31HR <u>A</u> | VEW | 6 | 1a | 4000(8000)*1 | 0.02 | 1000 | 1100 | 5 | 1 | 1500 | 131 |
| 40 | G3VM-41GR6 | | 4 | 1a | 120 | 10 | 1 | 1 | 0.5 | 0.5 | 1500 | 165 |
| 40 | G3VM-41GR4 | | 4 | 1a | 250 | 2 | 1 | 5 | 0.5 | 0.5 | 1500 | 165 |
| 40 | G3VM-41GR5 | | 4 | 1a | 300 | 1 | 1 | 10 | 0.5 | 0.5 | 1500 | 165 |
| 40 | G3VM-41GR8 | | 4 | 1a | 1000 | 0.1 | 1 | 300 | 3 | 0.5 | 1500 | 127 |
| 40 | G3VM-41HR | | 6 | 1a | 2500 (5000) *1 | 0.03 | 10 | 1000 | 5 | 1 | 1500 | 131 |
| 60 | G3VM-61VY1 | | 4 | 1a | 100 | 25 | 1000 | 10 | 5 | 5 | 3750 | 68 |
| 60 | G3VM-61G1 | | 4 | 1a | 400 | 1 | 1000 | 130 | 2 | 0.5 | 1500 | 68 |
| 60 | G3VM-61G2 | | 4 | 1a | 400 | 1 | 1000 | 130 | 8 | 3 | 1500 | 68 |
| 60 | G3VM-61G3 | | 4 | 1a | 400 | 1 | 1000 | 130 | 10 | 5 | 1500 | 68 |
| 60 | G3VM-61VY2 <u>A</u> | VEW | 4 | 1a | 500 | 1 | 1000 | 20 | 2 | 0.5 | 3750 | 68 |
| 60 | G3VM-61VY3 <u>A</u> | VEW | 4 | 1a | 700 | 0.15 | 1000 | 100 | 3 | 0.5 | 3750 | 68 |
| 60 | G3VM-61GR1 | | 4 | 1a | 1000 | 0.25 | 100 | 90 | 3 | 1 | 1500 | 127 |
| 60 | G3VM-61GR2 <u>A</u> | VEW | 4 | 1a | 1700 | 0.08 | 10 | 250 | 3 | 0.5 | 1500 | 127 |
| 60 | G3VM-61VR <u>A</u> | VEW | 4 | 1a | 1400 | 0.13 | 1000 | 100 | 3 | 1 | 3750 | 127 |
| 60 | G3VM-63G <u>A</u> | VEW | 4 | 1b | 500 | 1 | 1000 | 100 | 1 | 3 | 1500 | 68 |
| 60 | G3VM-61H1 | | 6 | 1a | 400 (800) *1 | 1 | 1000 | 130 | 2 | 0.5 | 1500 | 88 |
| 60 | G3VM-61HR | | 6 | 1a | 2300 (4600) *1 | 0.04 | 10 | 1000 | 5 | 1 | 1500 | 131 |
| 60 | G3VM-61HR1 <u>A</u> | VEW | 6 | 1a | 3300 (6600)*1 | 0.03 | 20 | 700 | 5 | 1 | 1500 | 131 |

^{*1} Load current in case of connection C is shown in parentheses (DC load only)
*2 Current-Limiting function (Limit current 150 mA Min. 300 mA Max.)

Product Index

■SOP (Small Outline Package)

| Load Voltage (V) Max. | Model | | | Contact form | Continuous load current (mA) Max. | Maximum resistance with output ON (Ohm) Typ. | Current leakage when the relay is open (nA) Max. | Capacitance between terminals (pF) Typ. | Turn-ON time (ms) Max. | Turn-OFF time (ms) Max. | Dielectric strength between I/O (Vrms) | Page |
|-----------------------------|----------------------|------------|---|-----------------|-----------------------------------|--|---|--|---------------------------|-------------------------------|---|------|
| 60 | G3VM-62J1 | | 8 | 2a | 400 | 1 | 1000 | 130 | 2 | 0.5 | 1500 | 104 |
| 80 | G3VM-81GR | | 4 | 1a | 40 | 16 | 1 | 2.5 | 0.5 | 0.5 | 1500 | 165 |
| 80 | G3VM-81GR1 | | 4 | 1a | 200 | 5 | 1 | 6.5 | 0.5 | 0.5 | 1500 | 165 |
| 80 | G3VM-81G1 | | 4 | 1a | 350 | 1 | 1 | 30 | 0.5 | 0.5 | 1500 | 73 |
| 80 | G3VM-81HR | | 6 | 1a | 1250 (2500) *1 | 0.11 | 1.5 | 460 | 3 | 1 | 1500 | 137 |
| 100 | G3VM-101HR | | 6 | 1a | 1400 (2800) *1 | 0.1 | 10 | 1000 | 5 | 1 | 1500 | 137 |
| 100 | G3VM-101HR1 <u>A</u> | <i>IEW</i> | 6 | 1a | 2000 (4000)*1 | 0.045 | 1000 | 500 | 5 | 1 | 1500 | 137 |
| 200 | G3VM-201G | | 4 | 1a | 50 | 40 | 1 | 15 | 0.5 | 0.2 | 1500 | 77 |
| 200 | G3VM-201G1 | | 4 | 1a | 200 | 5 | 1000 | 90 | 8 | 3 | 1500 | 77 |
| 200 | G3VM-201G2 | | 4 | 1a | 200 | 5 | 1000 | 90 | 10 | 5 | 1500 | 77 |
| 200 | G3VM-S5 | | 4 | 1a | 200 | 5 | 1000 | 100 | 1.5 | 1 | 1500 | 77 |
| 200 | G3VM-201H1 | | 6 | 1a | 200 (400) *1 | 5 | 1000 | 100 | 1.5 | 1 | 1500 | 88 |
| 200 | G3VM-202J1 | | 8 | 2a | 200 | 5 | 1000 | 100 | 1.5 | 1 | 1500 | 104 |
| 350 | G3VM-351G1 | | 4 | 1a | 100 | 35 | 1000 | 35 | 5 | 3 | 1500 | 82 |
| 350 | G3VM-351G | | 4 | 1a | 110 | 35 | 1000 | 30 | 1 | 1 | 1500 | 82 |
| 350 | G3VM-351VY <u>A</u> | <i>IEW</i> | 4 | 1a | 110 | 35 | 1000 | 60 | 1 | 0.5 | 3750 | 82 |
| 350 | G3VM-351GL | | 4 | 1a | 120 *2 | 15 | 1000 | 70 | 1 | 1 | 1500 | 159 |
| 350 | G3VM-353G | | 4 | 1b | 120 | 15 | 1000 | 65 | 1 | 3 | 1500 | 82 |
| 350 | G3VM-351H | | 6 | 1a | 110 (220) *1 | 35 | 1000 | 30 | 1 | 1 | 1500 | 88 |
| 350 | G3VM-353H | | 6 | 1b | 120 (240) *1 | 15 | 1000 | 65 | 1 | 3 | 1500 | 88 |
| 350 | G3VM-355JR | | 8 | 1a1b | 120 | 15 | 1000 | 65 | 1 | 3 | 1500 | 104 |
| 350 | G3VM-352J | | 8 | 2a | 110 | 35 | 1000 | 30 | 1 | 1 | 1500 | 104 |
| 350 | G3VM-354J | | 8 | 2b | 120 | 15 | 1000 | 65 | 1 | 3 | 1500 | 104 |
| 400 | G3VM-401G1 | | 4 | 1a | 100 | 18 | 1000 | 70 | 10 | 5 | 1500 | 82 |
| 400 | G3VM-401G | | 4 | 1a | 120 | 17 | 1000 | 70 | 1 | 1 | 1500 | 82 |
| 400 | G3VM-401H | | 6 | 1a | 120 (240) *1 | 17 | 1000 | 70 | 1 | 1 | 1500 | 88 |
| 400 | G3VM-402J | | 8 | 2a | 120 | 17 | 1000 | 70 | 1 | 1 | 1500 | 104 |
| 600 | G3VM-601G1 | | 4 | 1a | 70 | 35 | 1000 | 75 | 10 | 5 | 1500 | 94 |
| 600 | G3VM-601G | | 4 | 1a | 90 | 45 | 1000 | 75 | 8 | 3 | 1500 | 94 |

^{*1} Load current in case of connection C is shown in parentheses (DC load only)
*2 Current-Limiting function (Limit current 150 mA Min. 300 mA Max.)

■SSOP (Shrink Small Outline Package)

| | i (Sililik Siliali | Outiliii | c i ac | rage) | | | | | | | |
|-----------------------------|--------------------|---------------------|--------|-----------------------------------|-----------------|---|------|---------------------------|-------------------------------|---|------|
| Load Voltage (V) Max. | Model | Number of terminals | | Continuous load current (mA) Max. | resistance with | Current leakage when the relay is open (nA) Max. | | Turn-ON time (ms) Max. | Turn-OFF time (ms) Max. | Dielectric strength between I/O (Vrms) | Page |
| 20 | G3VM-21LR | 4 | 1a | 160 | 5 | 1 | 1 | 0.5 | 0.5 | 1500 | 170 |
| 20 | G3VM-21LR10 | 4 | 1a | 200 | 3 | 0.2 | 0.8 | 0.2 | 0.2 | 1500 | 170 |
| 20 | G3VM-21LR1 | 4 | 1a | 450 | 0.8 | 1 | 5 | 0.5 | 0.5 | 1500 | 170 |
| 20 | G3VM-21LR11 | 4 | 1a | 900 | 0.18 | 1 | 40 | 2 | 1 | 1500 | 170 |
| 40 | G3VM-41LR10 | 4 | 1a | 120 | 12 | 0.2 | 0.45 | 0.2 | 0.3 | 1500 | 175 |
| 40 | G3VM-41LR6 | 4 | 1a | 120 | 10 | 1 | 1 | 0.5 | 0.5 | 1500 | 175 |
| 40 | G3VM-41LR11 | 4 | 1a | 140 | 7 | 0.2 | 0.7 | 0.2 | 0.2 | 1500 | 175 |
| 40 | G3VM-41LR4 | 4 | 1a | 250 | 2 | 1 | 5 | 0.5 | 0.5 | 1500 | 175 |
| 40 | G3VM-41LR5 | 4 | 1a | 300 | 1 | 1 | 10 | 0.5 | 0.5 | 1500 | 175 |
| 60 | G3VM-61LR | 4 | 1a | 400 | 1 | 1000 | 20 | 1 | 1 | 1500 | 204 |
| 80 | G3VM-81LR | 4 | 1a | 120 | 7.5 | 0.2 | 5 | 0.25 | 0.2 | 1500 | 204 |
| 100 | G3VM-101LR | 4 | 1a | 80 | 8 | 0.2 | 6 | 0.3 | 0.3 | 1500 | 204 |

■USOP (Ultra Small Outline Package)

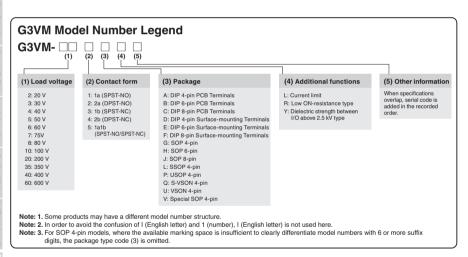
| Load Voltage (V) Max. | Model | Number of terminals | | Continuous load current (mA) Max. | Maximum resistance with output ON (Ohm) Typ. | Current leakage when the relay is open (nA) Max. | Capacitance between terminals (pF) Typ. | Turn-ON time (ms) Max. | Turn-OFF time (ms) Max. | Dielectric strength between I/O (Vrms) | Page |
|-----------------------------|-------------|---------------------|----|-----------------------------------|--|---|--|---------------------------|-------------------------------|---|------|
| 20 | G3VM-21PR10 | 4 | 1a | 200 | 3 | 1 | 0.8 | 0.2 | 0.2 | 500 | 180 |
| 20 | G3VM-21PR1 | 4 | 1a | 450 | 0.6 | 1 | 5 | 0.5 | 0.5 | 500 | 180 |
| 20 | G3VM-21PR11 | 4 | 1a | 900 | 0.18 | 1 | 40 | 2 | 1 | 500 | 180 |
| 40 | G3VM-41PR12 | 4 | 1a | 100 | 15 | 1 | 0.3 | 0.2 | 0.2 | 500 | 185 |
| 40 | G3VM-41PR6 | 4 | 1a | 120 | 10 | 0.2 | 1 | 0.2 | 0.3 | 500 | 185 |
| 40 | G3VM-41PR10 | 4 | 1a | 120 | 12 | 1 | 0.45 | 0.2 | 0.3 | 500 | 185 |
| 40 | G3VM-41PR11 | 4 | 1a | 140 | 7 | 1 | 0.7 | 0.2 | 0.2 | 500 | 185 |
| 40 | G3VM-41PR5 | 4 | 1a | 300 | 1 | 1 | 10 | 0.5 | 0.3 | 500 | 185 |
| 50 | G3VM-51PR | 4 | 1a | 300 | 1 | 1 | 12 | 0.5 | 0.4 | 500 | 185 |
| 60 | G3VM-61PR1 | 4 | 1a | 120 | 10 | 1 | 0.7 | 0.2 | 0.2 | 500 | 208 |
| 60 | G3VM-61PR | 4 | 1a | 400 | 1 | 1 | 20 | 0.5 | 0.5 | 500 | 208 |
| 75 | G3VM-71PR | 4 | 1a | 400 | 1 | 1 | 30 | 2 | 1 | 500 | 208 |
| 80 | G3VM-81PR | 4 | 1a | 120 | 7 | 0.02 | 5 | 0.5 | 0.2 | 500 | 208 |
| 100 | G3VM-101PR | 4 | 1a | 100 | 8 | 0.2 | 6 | 0.3 | 0.3 | 500 | 208 |

■VSON (Very Small Outline Package Non-leaded)

| Load Voltage (V) Max. | Model | Number of terminals | | Continuous load current (mA) Max. | resistance with | Current leakage when the relay is open (nA) Max. | Capacitance between terminals (pF) Typ. | Turn-ON time (ms) Max. | Turn-OFF time (ms) Max. | Dielectric strength between I/O (Vrms) | Page |
|-----------------------------|-------------|---------------------|----|-----------------------------------|-----------------|---|--|---------------------------|-------------------------------|---|------|
| 20 | G3VM-21UR10 | 4 | 1a | 200 | 3 | 1 | 0.8 | 0.2 | 0.2 | 500 | 190 |
| 20 | G3VM-21UR1 | 4 | 1a | 450 | 0.8 | 1 | 5 | 0.4 | 0.4 | 500 | 190 |
| 20 | G3VM-21UR11 | 4 | 1a | 1000 | 0.18 | 1 | 40 | 2 | 1 | 500 | 190 |
| 40 | G3VM-41UR12 | 4 | 1a | 100 | 15 | 1 | 0.3 | 0.2 | 0.2 | 500 | 195 |
| 40 | G3VM-41UR10 | 4 | 1a | 120 | 12 | 1 | 0.45 | 0.2 | 0.3 | 500 | 195 |
| 40 | G3VM-41UR11 | 4 | 1a | 140 | 7 | 1 | 0.7 | 0.2 | 0.2 | 500 | 195 |
| 50 | G3VM-51UR | 4 | 1a | 300 | 1 | 1 | 12 | 0.5 | 0.4 | 500 | 195 |
| 60 | G3VM-61UR1 | 4 | 1a | 120 | 10 | 1 | 0.7 | 0.2 | 0.2 | 500 | 213 |
| 60 | G3VM-61UR | 4 | 1a | 400 | 1 | 1 | 20 | 0.5 | 0.5 | 500 | 213 |
| 80 | G3VM-81UR | 4 | 1a | 120 | 7 | 0.02 | 5 | 0.5 | 0.2 | 500 | 213 |
| 80 | G3VM-81UR1 | 4 | 1a | 200 | 6 | 1 | 6.5 | 0.4 | 0.4 | 500 | 213 |
| 100 | G3VM-101UR | 4 | 1a | 100 | 8 | 0.2 | 6 | 0.3 | 0.3 | 500 | 213 |

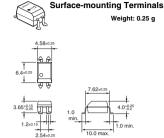
■S-VSON (Super-Very Small Outline Package Non-leaded)

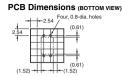
| | JOIT (Jupor | | | | nio i aonag | o mom noa | | | | | | |
|-----------------------------|-------------|-----|---------------------|----|-----------------------------------|--|---|--|---------------------------|-------------------------------|---|------|
| Load Voltage (V) Max. | Model | | Number of terminals | | Continuous load current (mA) Max. | Maximum resistance with output ON (Ohm) Typ. | Current leakage when the relay is open (nA) Max. | Capacitance between terminals (pF) Typ. | Turn-ON time (ms) Max. | Turn-OFF time (ms) Max. | Dielectric strength between I/O (Vrms) | Page |
| 30 | G3VM-31QR | NEW | 4 | 1a | 1500 | 0.1 | 1 | 120 | 2 | 1 | 500 | 143 |
| 40 | G3VM-41QR10 | NEW | 4 | 1a | 120 | 11 | 1 | 0.45 | 0.2 | 0.3 | 500 | 200 |
| 60 | G3VM-61QR | NEW | 4 | 1a | 400 | 1.1 | 1 | 12 | 0.5 | 0.3 | 500 | 200 |
| 60 | G3VM-61QR2 | NEW | 4 | 1a | 1000 | 0.2 | 1 | 80 | 2 | 0.3 | 500 | 143 |
| 100 | G3VM-101QR1 | NEW | 4 | 1a | 650 | 0.4 | 1 | 50 | 2 | 0.3 | 500 | 143 |



■DIP4 (Unit: mm)





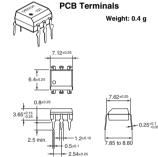


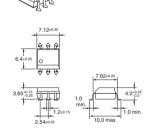
Actual Mounting Pad Dimensions (Recommended Value, Top View)

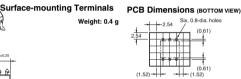


■DIP6

(Unit: mm)





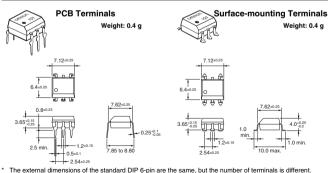


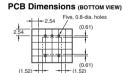
Actual Mounting Pad Dimensions (Recommended Value, Top View)



■Special DIP6 * (G3VM-61BR/ER)

(Unit: mm)





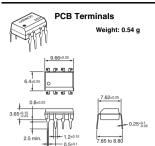
Actual Mounting Pad Dimensions (Recommended Value, Top View)



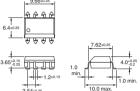
The external americans of the standard Bit of pirture the came, but the number of terminals i

Note: The actual product is marked differently from the image shown here.

■DIP8 (Unit: mm)







PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions (Recommended Value, Top View)

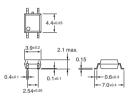


■SOP4

(Unit: mm)



Surface-mounting Terminals
Weight: 0.1 g



Actual Mounting Pad Dimensions



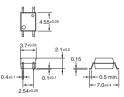
■Special SOP6 * (G3VM-61VY1)

(Unit: mm)



Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)

* The external dimensions are different from those of the standard SOP 4-pin, but the mounting pad dimensions are the same.

■SOP6

(Unit: mm)



Surface-mounting Terminals
Weight: 0.13 g

Actual Mounting Pad Dimensions (Recommended Value, Top View)



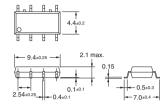
Note: The actual product is marked differently from the image shown here.

■SOP8 (Unit: mm)



Surface-mounting Terminals

Weight: 0.2 g



Actual Mounting Pad Dimensions (Recommended Value, Top View)



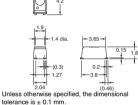
■SSOP4

(Unit: mm)



Surface-mounting Terminals

Weight: 0.03 a



(Recommended Value, Top View)

Actual Mounting Pad Dimensions



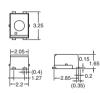
■USOP4

(Unit: mm)



Surface-mounting Terminals

Weight: 0.03 g



Unless otherwise specified, the dimensional tolerance is \pm 0.2 mm.

Actual Mounting Pad Dimensions





■VSON4

(Unit: mm)



Surface-mounting Terminals Weight: 0.01 g

0.8=0.1 0.45=0.1





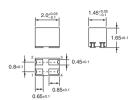
Note: The actual product is marked differently from the image shown here.

■S-VSON4 (Unit: mm)



Surface-mounting Terminals

Weight: 0.01 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Unless otherwise specified, the dimensional tolerance is + 0.1 mm.

■S-VSON(L)*4

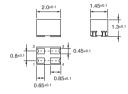
(L): Low profile type

(Unit: mm)



Surface-mounting Terminals

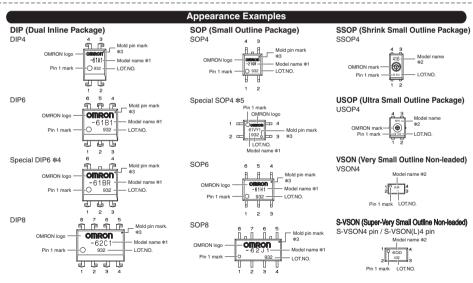
Weight: 0.01 g



Actual Mounting Pad Dimensions (Recommended Value, Top View)



Unless otherwise specified, the dimensional tolerance is \pm 0.1 mm.

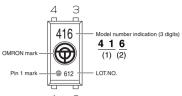


- *1. "G3VM" does not appear in the model numbers on DIP or SOP Relays.
- *2. Model numbers are given on SSOP4, USOP4, and VSON4 Relays according to the Model Number Indication Standards.
- *3. The indentation may appear in the corner diagonally opposite from the pin 1 mark due to extrusion by metal casting.
- *4. The external dimensions of the standard DIP 6-pin are the same, but the number of terminals is different.
- *5. The external dimensions are different from those of the standard SOP 4-pin, but the mounting pad dimensions are the same.

■Model Number Indication Standards for SSOP4, USOP4 and VSON4 Relays

Only three digits are given for the model number due to the small package size.

OSSOP4



●USOP4,VSON4,S-VSON4

(1) Load voltage

21: 20 V 41: 40 V 51: 50 V 61: 60 V 81: 80 V

Examples

81: 80 V 10: 100 V

416: G3VM-41LR6 21B: G3VM-21LR11

(2) Characters for Serial Numbers at the Ends of Model Numbers

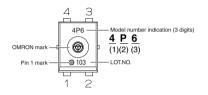
Indicates no number at the end of the model number.

1 to 9: Indicate the given number. Numbers 10 and higher indicate letters of the alphabet (A, B, C, etc.).

However, "101" is given for the G3VM-101LR

1 2

USOP4



VSON4



USOP4,VSON4,S-VSON4 Relay

| | , - | - |
|----------|-------|-----|
| (1) Load | volta | age |
| 2: 20 V | | |
| 3: 30 V | | |
| 4: 40 V | | |
| 5: 50 V | | |
| 6: 60 V | | |
| 7: 75 V | | |
| 8: 80 V | | |
| A: 100 | V | |
| | | |
| | | |

(2) Package
P: USOP4
U: VSON4
Q: S-VSON4 4 pin
S-VSON(L)* 4 pin
* (L): Low profile type

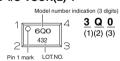
(3) Characters for Serial Numbers at the Ends of Model Numbers

Indicates no number at the end of the model number.
 1 to 9: Indicate the given number.
 Numbers 10 and higher indicate letters of the alphabet (A, B, C, etc.).

Examples

4P6: G3VM-41PR6 2UB: G3VM-21UR11

S-VSON 4/S-VSON(L) 4



^{*} Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

^{*} Refer to pages 218 to 220 for detailed information on models certified for standards.

| | | Application | | PCBs | For I | | |
|--------------------------|--------|----------------------------------|--|---|---|---|----|
| | | Model | G3VM-61AY G3VM-61DY | G3VM-61A1 G3VM-61D1 | G3VM-41BR G3VM-41ER | G3VM-41AR G3VM-41DR | |
| | | Contact form | | | 1a (SP | Connection Connecti | |
| | | Package | 4.58 | 4.58 | 7.12 | 4.58 | |
| | ige) | (Unit : mm, Avera | 4.58 | 4.58 | 7.12 | 4.58 | |
| | | | DIP4 | DIP4 | DIP6 | DIP4 | |
| | | Features | Small and High-dielectric- strength Type Load voltage: 60 V Dielectric strength between I/O: 5,000 VAC Trigger LED forward current: 2 mA max. | General-purpose Type Load voltage: 60 V | resistance Type • Load voltage: 40 V • Continuous load current: 3.5 A (7 A) max. * * Values in parentheses are for connection C. | Load voltage: 40 V Continuous load current | |
| _ |)d | Isolation method | | de coupler | Photodio | | |
| | , | C peak Load voltage | V | 60 | V | 40 | |
| | | | 10,00 | | | | |
| | | | | | * Connection C | | - |
| | | | | + = = = = = = = = = = | 7,000 mA | | ř |
| | | | | | | | [|
| | | | | | . | | ļ |
| U | | | | | 3,500 mA | | ŀ |
| Absolute maximum ratings | T T | | | | | 2,500 mA | ŀ |
| , E | Output | AC peak/ DC | | | . | [| Ī |
| <u>.</u> |): | * 6-pin type connection C: | | | | | ļ. |
| , a | | DC | | | | | - |
| 9 | | | | | | | ŀ |
| 9 | | | | 500 mA | | [| Ī |
| 1 | | | 400 | | | | Ļ |
| | | | 300 | | | | - |
| | | | 200 | | | | ŀ |
| | | | 100 | | | : | ŀ |
| | Inout | D forward current | 30 mA LEI | 50 mA | mA | 30 | |
| כ | | ctric strength between | | | | | |
| | | Ambient operating temperature | , | | (with no icing o | | |
| Electrical | tout | ximum output ON resistance | Ω | 2 | Connection A: 0.06Ω Connection B: 0.015Ω (typical) Connection C: 0.008Ω (typical) | 0.15 Ω | |
| Elec | · Õ | imum OFF leakage current | 60 VDC) Maxi | 1 μA (at | 40 VDC) | 1 μA (at | |
| Terminal | inal | ace-mounting termin | Surfa | • | • | | |
| Teri | | PCB terminals | | | | | |
| | | Mounting metho | | mounting | Surface | | |
| 3 | | Applicable standa | | | | | |
| | ce | RoHS compliance | Output Output | 4 0.05 | | | |
| | | Weight | 0.25 a | Annrow | VM-41AR VM-41DR G3VM-41BR G3VM-41ER 1a (S 7.12 3.85 DIP4 DIP6 High-current and Low-ON-resistance Type Load voltage: 40 V Sus load current: 3.5 A (7 A) max. Values in parentheses are for connection C. Photodi 40 V Continuous load current: 3.5 A (7 A) max. Values in parentheses are for connection C. Photodi 40 V 30 mA 2,500 VAC 50/60 Hz for 1 mir 40 I (with no icing Connection B: 0.015 Ω (typical) Connection C: 0.008 Ω (typical) 1 μA (at 40 VDC) PCB rr Surface Corrox. 0.25 g Approx. 0.4 g | | |

| _ | Application | | | | | | | |
|----------------------|--|--------|----------------------------------|---|--|---|--|--|
| | | | Application | G3VM-61AY1 | For F G3VM-61AR | PCBs G3VM-61B1 | G3VM-61BR | |
| | | | Model | G3VM-61DY1 | G3VM-61DR | G3VM-61E1 | G3VM-61ER | |
| | | | Contact form | | 1a (SP | ST-NO) | | |
| | | | Package | 4.59 | 4.58 | 7.12 | 7.12 | |
| (Unit : mm, Average) | | | | 4.58 | 4.58 | 7.12 | 7.12 | |
| | | | | DIP4 | DIP4 | DIP6 | Special DIP6 | |
| | | | Features | Small and High-dielectric- strength Type Load voltage: 60 V Dielectric strength between I/O: 5,000 VAC | High-current and Low-ON-resistance Type Load voltage: 60 V Continuous load current: 2 A max. | General-purpose Type Load voltage: 60 V | High-current and Low-ON-resistance Type Load voltage: 60 V Continuous load current: 2.5 A max. | |
| Isolation method | | | | Photodioo | de coupler | | | |
| | | | Load AC peak voltage DC | | 60 | V | | |
| | | | 10,000 | | | | | |
| | | | 9,000 | | | , | | |
| | | | 8,000 | | | | | |
| | | | 7,000 6,000 | | | | | |
| | | | 5,000 | | | | | |
| <u>u</u> | 2 | | 4,000 Continuous 3,000 | | | | 0.500 4 | |
| atin | | Output | load current 2 000 | | 2,000 mA | * Connection C | 2,500 mA | |
| 2 | ⇒ I I '6-bin type : | | AC peak/ DC * 6-pin type 1,000 | | | 1,000 mA | | |
| wix | 5 | | connection C: 900 | | | | | |
| E d | | | DC 800 700 | | | | | |
| tilo. | | | 600 | <u> </u> | | | | |
| Δh | É | | 500 | | | | | |
| | | | 400 300 | | | | | |
| | | | 200 | | | | | |
| | | | 100 | | | | | |
| | Ī | Input | LED forward current | 30 | mA | 50 mA | 30 mA | |
| | | | ectric strength between I/O | 5,000 VAC 50/60 Hz for 1 min. | | 2,500 VAC 50/60 Hz for 1 min. | | |
| | ĺ | | Ambient operating temperature | | -40 to (with no icing o | +85°C | | |
| rical | eristics | Output | Maximum output ON resistance | 2 Ω | 0.2 Ω | Connection A: 2 Ω Connection B: 1 Ω Connection C: 0.25 Ω (typical) | 0.1 Ω | |
| Elect | Electrical characteristics | | Maximum OFF leakage current | | 1 μA (at 60 VDC) | (7,) | 10 nA (at 60 VDC) | |
| | | | | | | | | |
| Termi | Surface-mounting terminals PCB terminals | | PCB terminals | | • | • | | |
| | | N | Nounting method | | PCB mo Surface | unting or mounting | | |
| | | | plicable standards | | U | L | | |
| | | R | toHS compliance | | | pliant | | |
| | | | Weight Page | Approx 147 | . 0.25 g | Approx 62 | c. 0.4 g | |
| | | | raye | 14/ | 110 | 02 | 113 | |

^{*} Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

Refer to pages 218 to 220 for detailed information on models certified for standards.

| | | Application | n | | | |
|--|--|---|---|--------------------------------|------------|--------------------------|
| G3VM-61BR1 G3VM-61ER1 | G3VM-61CR1 G3VM-61FR1 | G3VM-62C1 G3VM-62F1 | G3VM-101AR G3VM-101DR | Model | | |
| 1a (SP: | ST-NO) | 2a (DPST-NO) | 1a (SPST-NO) | Contact fo | rm | |
| 7.12 | 9.66 | 9.66 6.4 3.65 | 4.58 | Package | . | |
| 7.12 | 9.66 3.85 NEW 6.4 | 9.66 | 3.85 | (Unit : mm, Av | |) |
| DIP6 | DIP8 | DIP8 | DIP4 | | | |
| High-current and Low-ON-resistance Type Load voltage: 60 V Continuous load current : 3 A (6 A) max.* Values in parentheses are for connection C. | High-current and Low-ON-resistance Type Load voltage: 60 V Continuous load current: 5 A (10 A) max.* Values in parentheses are for connection C. | Multi-contact-pair Type Load voltage: 60 V Contact form: 2a (DPST-NO) | High-current and Low-ON- resistance Type Load voltage: 100 V Continuous load current: 1 A max. | Features | | |
| Photodiode coupler | | | | | thod | |
| | 60 V | | 100 V | DC Loa | | |
| | *Connection C 10,000 mA | | | 10,000 | | |
| | | | | 9,000 8,000 | | |
| * Connection C 6,000 mA | | | | 7,000 6,000 | | |
| | 5,000 mA | | | 5,000 | | |
| 3,000 mA | | | | 4,000 3,000 Continuo | us ± | sge |
| | | | 1,000 mA | 2,000 load curre | nt E | Absolute maximum ratings |
| | | | | 900 connectio | | ej ej |
| | | | | 800 DC 700 | | e max |
| | | 500 mA | | 600 | | solut |
| | | | | - 500 - 400 | | A P |
| | | | | 300 | | |
| | | | | 200 100 | | |
| 30 | mA | 50 mA | 30 mA | LED forward curre | nt <u></u> | į |
| | 2,500 VAC 50/6 | 60 Hz for 1 min. | | Dielectric strength bety | | |
| -40 to +85°C | | | | Ambient operati | | |
| Connection A: 0.07 Ω | Connection At 0.07.0 Connection At 0.05.0 | | temperature | | u | |
| Connection B: 0.02Ω (typical) Connection C: 0.01Ω (typical) | Connection B: 0.025Ω Connection C: 0.013Ω | 2 Ω | 0.7 Ω | Maximum output C resistance | <u> </u> | Electrical |
| 1 μA (at 60 VDC) | 10 μA (at 60 VDC) | 1 μA (at 60 VDC) | 1 μA (at 100 VDC) | Maximum OFF leaks current | ige Ĉ | E E |
| | • | • | | Surface-mounting te | rminal | Terminal |
| • | | | | PCB terminals | • | Teri |
| PCB mounting or Surface mounting | | | | Mounting me | | |
| | U | | | Applicable standards | | |
| Approx. 0.4 g | Com | 0.54 g | Approx. 0.25 g | RoHS compliance Weight | | |
| 115 | 121 | 98 | 110 | Page | | |

Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
 Refer to pages 218 to 220 for detailed information on models certified for standards.

| Application | | | For PCBs | | | | | |
|---------------------------------|--------------|--|---|---|---|--|---|--|
| | | Model | G3VM-101BR G3VM-101ER | G3VM-101CR G3VM-101FR | G3VM-201AY G3VM-201DY | G3VM-201AY1 G3VM-201DY1 | | |
| | | Contact form | | 1a (SP | ST-NO) | | | |
| Package (Unit : mm, Average) | | | 7.12 | 9,66 | 4.58 | 4.58 | | |
| | | | 7.12 | 9.66 33.55 NEW 6.4 | 4.58 | 4.58 | | |
| | | | DIP6 | DIP8 | DIP4 | DIP4 | | |
| Features | | | High-current and Low-ON-resistance Type Load voltage: 100 V Continuous load current : 2 A (4 A) max.* Values in parentheses are for connection C. | High-current and Low-ON-resistance Type Load voltage: 100 V Continuous load current 3 A (6 A) max.* Values in parentheses are for connection C. | Small and High-dielectric- strength Type Load voltage: 200 V Dielectric strength between I/O: 5,000 VAC Trigger LED forward current: 2 mA max. | Small and High-dielectric- strength Type Load voltage: 200 V Dielectric strength between I/O: 5,000 VAC | | |
| | | solation method | | Photodio | de coupler | | | |
| | | Load AC peak DC | 10 | 0 V | 20 | 0 V | | |
| Absolute maximum ratings | Input Output | 10,000 9,000 8,000 7,000 6,000 5,000 4,000 6,0 | *Connection C 4,000 mA | | 250 mA | 250 mA | | |
| | Die | ectric strength between I/O | 2,500 VAC 50/ | 60 Hz for 1 min. | 5,000 VAC 50/ | | | |
| | | Ambient operating temperature | -40 to +85°C (with no icing or condensation) | -40 to +110°C (with no icing or condensation) | | +85°C r condensation) | | |
| Electrical characteristics | Output | Maximum output ON resistance | Connection A: $0.2~\Omega$ Connection B: $0.05~\Omega$ (typical) Connection C: $0.025~\Omega$ (typical) | Connection A: 0.15Ω Connection B: 0.075Ω Connection C: 0.075Ω | | Ω | | |
| Elec | on | Maximum OFF leakage current | 1 μA (at | 100 VDC) | 1 μA (at: | 200 VDC) | | |
| Terminal structure | Sur | face-mounting terminals | | • | • | | | |
| Terr | | PCB terminals | | | • | | | |
| | | Nounting method | | Surface | unting or mounting | | | |
| | - | plicable standards | | | JL pliant | | | |
| | · | loHS compliance Weight | Approx. 0.4 q | Approx. 0.54 q | | . 0.25 q | | |
| | | Page | 115 | 121 | 147 | 0.25 g | | |
| | | . 490 | 1 | .21 | l • • • • • • • • • • • • • • • • • • • | . ** | 1 | |
| | | | | | | | | |

^{*} Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

Refer to pages 218 to 220 for detailed information on models certified for standards.

| For PCBs | | | | | Application | | |
|---|---------------------------------|----------------------------|---------------------|-------------------------------|------------------------------|-------------|----------------------------|
| G3VM-201CR G3VM-201FR | G3VM-351AY G3VM-351DY | G3VM-351AY1 G3VM-351DY1 | G3VM-2L G3VM-2FL | Model | | | |
| | 1a (SP | ST-NO) | | С | ontact form | | |
| 9,66 3,65 6,4 | 4.58 | 4.58 | 4.58 | Package | | | |
| 9.66 3.65 NEW 6.4 | 4.58 | 4.58 | 4.58 | Package (Unit : mm, Averag | | e) | |
| DIP8 | DIP4 | DIP4 | DIP4 | | | | |
| * High-current and Low-ON-resistance Type * Load voltage: 200 V * Continuous load current : 1.5 A (3 A) max.* * Values in parentheses are for connection C. * Small and High-dielectric-strength Type * Load voltage: 350 V * Dielectric strength between 1/O: 5,000 VAC * Trigger LED forward current : 2 mA max. * Photodiate occurior * Small and High-dielectric-strength Type * Load voltage: 350 V * Dielectric strength between 1/O: 5,000 VAC * Trigger LED forward current : 2 mA max. * Photodiate occurior * Current limit: 150 to 300 mA * Current limit: 150 to 300 mA | | | Features | | | | |
| Photodiode coupler | | | | | lation method | | |
| 200 V | | 350 V | | AC peak Load voltage | | | |
| "Connection C 3,000 mA | 3,000 mA | | | - 10,000 | | nput Output | Absolute maximum ratings |
| 30 mA 50 mA 50 mA 2,500 VAC 50/60 Hz for 1 min. 5,000 VAC 50/60 Hz for 1 min. 2,500 VAC 50/60 Hz for 1 min. | | | | | ard current ength between | _ | |
| 2,500 VAC 50/60 Hz for 1 min. 5,000 VAC 50/60 Hz for 1 min. 2,500 VAC 50/60 Hz for 1 min. 2,500 VAC 50/60 Hz for 1 min. | | | | | nt operating | .,0 | |
| Connection A: 0.5 Ω | (with no icing or condensation) | | | tem | perature | | |
| Connection B: 0.25Ω 50 Ω 35 Ω Connection C: 0.25Ω | | | Maximum resis | output ON stance | that | trical | |
| 1 μA (at 200 VDC) 1 μA (at 350 VDC) | | | | | Maximum OFF leakage current | | Electrical characteristics |
| • | | | | | | | Terminal structure |
| • | | | | | PCB terminals | | Terr |
| PCB mounting or Surface mounting | | | | Mou | unting method | i | |
| UL | | | | Appli | cable standar | ds | |
| | Comp | | | RoH | IS compliance | • | |
| Approx. 0.54 g | | Approx. 0.25 g | | Weight | | | |
| 121 | 147 | 147 | 159 | Page | | | |

Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

Refer to pages 218 to 220 for detailed information on models certified for standards.

| Product | Table |
|----------------|--------------|
|----------------|--------------|

| Application | | | For PCBs | | | | | |
|--|-------------------|---|---------------------------|--|---|---|--|---|
| | | | | G3VM-351A | G3VM-353A | G3VM-351B | G3VM-353B | |
| | | Mod | | G3VM-351D | G3VM-353D | G3VM-351E | G3VM-353E | |
| | | Contact | t form | 1a (SPST-NO) | 1b (SPST-NC) | 1a (SPST-NO) | 1b (SPST-NC) | |
| | Package | | | 3.65 | 4.58 3.65 6.4 | 7.12 | 7.12 | |
| (Unit : mm, Average) | | age Average) | 4.58 | 4.58 | 7.12 | 7.12 | | |
| | | | | DIP4 | DIP4 | DIP6 | DIP6 | |
| | Features | | | General-purpose Type Load voltage: 350 V | General-purpose Type Load voltage: 350 V Contact form: 1b (SPST-NC) | General-purpose Type Load voltage: 350 V | General-purpose Type Goad voltage: 350 V Contact form: 1b (SPST-NC) Ontact form: 1b (SPST-NC) | |
| | Isolation method | | method | | Photodio | de coupler | | |
| | | Load voltage | AC peak DC | | 35 | 0 V | | |
| | | | 10,000 | | | | | |
| | | | 9,000 | | | | | |
| | | 8,000 7,000 | | | | | | |
| | | | 7,000 6,000 | | | | | |
| | | | 5,000 | | | | | |
| ,, | | | 4,000 | | | | | |
| ings | Ħ | Continu | | | | | | |
| n rat | Output | load current 2,000 AC peak/ DC 1,000 | | | | | | |
| E E | | * 6-pin ty | pe | | | | | |
| Absolute maximum ratings | | connection C: 900 DC 800 700 600 500 400 | | | | | | |
| uter | | | | | | | | |
| loso | | | | | | | | - |
| ¥ | | | | | | * Connection C | * Connection C | |
| | | | 300 | | | 240 mA | 300 mA | |
| | | | 200 | · 120 mA · | 150 mA | - 120 mA | _ 150 mA | |
| | | 100 | | | | | | |
| | nput | LED fo | rward current | | 50 | mA | | |
| | _ | ectric stre | ength between I/O | | 2.500 VAC 50/ | 60 Hz for 1 min. | | |
| | Ambient operating | | nt operating | | -40 to | +85°C | | |
| | | | perature | | (with no icing o | r condensation) | | |
| Electrical characteristics | Output | re | um output ON esistance | 50 Ω | 25 Ω | Connection A: 50Ω Connection B: 40Ω Connection C: 20Ω | Connection A: 25 Ω Connection B: 14 Ω Connection C: 7 Ω | |
| | | | | | | | | |
| ਜ਼ ਦੂ ਰਿਸ਼ੀ Surface-mounting terminals | | | | | | | | |
| Terminal structure | | PCB t | terminals | | | • | | |
| | N | Mounting | method | | PCB mo Surface | ounting or mounting | | |
| | - | - | standards | UL and BSI (EN 60950) | | UL | | |
| | F | loHS con | • | | | pliant | | |
| | | Weig | | Approx 62 | . 0.25 g | Appro: | x. 0.4 g | |
| | | rag | je | 02 | 02 | 02 | 02 | |

Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
 Refer to pages 218 to 220 for detailed information on models certified for standards.

| Produ | ct T | 'ahle |
|-------|------|-------|

| Multi-contact-pair Type Load voltage: 350 V Contact form: 1a1b (SPST-NO) Photodiode coupler Photodiode coupler Current limiting Type | n | | |
|--|---------------------------------|----------|----------------------------|
| Package Pack | | | |
| Package Pack | m | | |
| * Multi-contact-pair Type | Package (Unit : mm, Average) | | |
| AC peak Log volts DC DC volts DC DC Volts | Features | | |
| 10,000 9,000 8,000 7,000 6,000 5,000 1,000 9,000 1,0 | nod | <u> </u> | |
| 9,000 8,000 7,000 6,000 5,000 4,000 2,000 1,000 4,000 1,000 4,000 1,000 4,000 1,000 4,000 1,000 4,000 1,000 4,000 1,000 4,000 1,000 4,000 1,000 4,000 6,000 | | | |
| 2,500 VAC 50/60 Hz for 1 min. Dielectric strength betw 40 to +85°C Ambient operati | nt C | Output | Absolute maximum ratings |
| -40 to +85°C Ambient operati | | Input | |
| -40 to +85°C Ambient operati (with no icing or condensation) temperature | | I/O | |
| (with no icing or condensation) temperate | | | |
| 25Ω 50Ω 35Ω 25Ω Maximum output O resistance | | Output | rical eristics |
| 1 μA (at 350 VDC) Maximum OFF leaks current | Maximum OFF leakage current | | Electrical characteristics |
| Surface-mounting ter | Surface-mounting terminals | | inal ture |
| PCB terminals | | | Terminal structure |
| Surface mounting | Mounting method | | |
| UL and BSI (EN 60950) UL Applicable sta | | | |
| Compliant RoHS compli | ınce | • | |
| The second secon | Weight | | |
| 98 98 159 98 Page | | | |

Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

Refer to pages 218 to 220 for detailed information on models certified for standards.

| Application | | | -41 | For PCBs | | | | | | |
|----------------------------|--|--------------------------|------------------------|--|---|--|---|--|--|--|
| | | | | G3VM-401A | G3VM-401AY | G3VM-401AY1 | G3VM-401B | | | |
| | | Mod | | G3VM-401D | G3VM-401DY | G3VM-401DY1 | G3VM-401E | | | |
| | | Contac | t form | | 1a (SPS | | | | | |
| | Package | | | 4.58 | 3.65 | 4.58 3.65 6.4 | 7.12 | | | |
| (Unit : mm, Average) | | age Average) | 4.58 3.65 6.4 | 4.58 3.65 6.4 | 4.58 3.65 6.4 | 7.12 | | | | |
| | | | | DIP4 | DIP4 | DIP4 | DIP6 | | | |
| | Features | | ures | General-purpose Type Load voltage: 400 V | Small and High-dielectric- strength Type Load voltage: 400 V Dielectric strength between I/O: 5,000 VAC Trigger LED forward current: 2 mA max. | Small and High-dielectric- strength Type Load voltage: 400 V Dielectric strength between I/O: 5,000 VAC | General-purpose Type Load voltage: 400 V | | | |
| Isolation method | | | method | | Photodioc | de coupler | | | | |
| Load AC peak | | | | 400 | 0 V | | | | | |
| | voltage DC | | | | | | | | | |
| | | 10,000 9,000 8,000 | | | | | | | | |
| | | | | | | | | | | |
| | | 7,000 | | | | | | | | |
| | | | 6,000 5,000 | | | | | | | |
| | | | 4,000 | | | | | | | |
| ngs | Tontinuous 3,000 (and current AC peak/ DC (and current AC peak) DC (and | | uous 3,000 | | | | | | | |
| rati | | | k/ DC | | | | | | | |
| μū | | | /pe 1,000 | | | | | | | |
| laxii | | DC | 800 | | | | | | | |
| ıten | | | 700 | | | | | | | |
| solt | | | 600 | | | | | | | |
| Ab | | | 500 400 | | | | * Connection C - | | | |
| | | | 300 | | | | 240 mA | | | |
| | | | 200 | · 120 mA · | 120 mA | 120 mA | - 120 mA | | | |
| | | | 100 | | | | | | | |
| | nbnt | LED fo | orward current | 50 mA | 30 | mA | 50 mA | | | |
| | _ | | ength between I/O | | 5,000 VAC 50/6 | | 2,500 VAC 50/60 Hz for 1 min. | | | |
| | | Ambier | nt operating | -40 to +85°C | | | | | | |
| | temperature (with no icing or condensation) | | | | | | | | | |
| Electrical characteristics | Output | | um output ON esistance | | 35 Ω | | Connection A: 35Ω Connection B: 20Ω Connection C: 10Ω | | | |
| Elec | 8 8 8 Maximum OFF leakage current 1 μA (at 400 VDC) | | | | | | | | | |
| Terminal | Surface-mounting terminals | | | | | | | | | |
| Ter | PCB terminals | | terminals | | • | | | | | |
| | | Mounting | | PCB mounting or Surface mounting | | | | | | |
| | | • | standards | | | L | | | | |
| | | RoHS cor Wei | • | | Approx. 0.25 g | pliant | Approx. 0.4 g | | | |
| | | Pag | | 62 | Approx. 0.25 g | 147 | Approx. 0.4 g | | | |
| _ | | . 4 | , - | | | | | | | |

^{*} Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

Refer to pages 218 to 220 for detailed information on models certified for standards.

| | Application | | | | | |
|--|---|------------------------|--|--|--------------------------|--|
| G3VM-401BY G3VM-401EY | G3VM-401CR G3VM-401FR | G3VM-402C G3VM-402F | G3VM-601AY G3VM-601DY | Model | | |
| 1a (SP: | ST-NO) | 2a (DPST-NO) | 1a (SPST-NO) | Contact form | | |
| 7.12 | 9.66 3.65 | 3.65 6.4 | 4.58 | Package | | |
| 7.12 | 9.66 NEW 6.4 | 9.66 | 4.58 3.65 6.4 | (Unit : mm, Average) | | |
| DIP6 | DIP8 | DIP8 | DIP4 | | | |
| High-dielectric-strength Type Load voltage: 400 V Dielectric strength between O.4 A (0.8 A) max.* Hugh-dielectric strength between O.4 A (0.8 A) max.* Multi-contact-pair Type Load voltage: 400 V Contact form: 2a (DPST-MC): 0.4 A (0.8 A) max.* | | | Load voltage :600 V Dielectric strength between I/O: 5,000 VAC Trigger LED forward current | Features | | |
| | Isolation method | | | | | |
| 400 V 600 V | | | 600 V | AC peak Load voltage | | |
| | | | | 10,000 9,000 | | |
| | | | | 8,000 | | |
| | | | | 7,000 6,000 | | |
| | | | | 5,000 | | |
| | | | | 4,000 | ø | |
| | | | | 3,000 Continuous | ting F | |
| t | | | | 1 000 AC peak/ DC | 2 E | |
| | * Connection C 800 mA | | | 900 * 6-pin type connection C: | Absolute maximum ratings | |
| | | | | 800 DC | шâ | |
| | | | | 700 600 | t e | |
| | | | | 500 | osq | |
| *Connection C | 400 mA | | | 400 | ٩ | |
| 240 mA | | | | 300 | | |
| 120 mA | | 120 mA | 90 mA | 100 | i | |
| | | | | | | |
| 50 mA | 30 mA | 50 mA | 30 mA | LED forward current | | |
| 5,000 VAC 50/60 Hz for 1 min. 2,500 VAC 50/60 Hz for 1 min. 5,000 V | | | 5,000 VAC 50/60 Hz for 1 min. | Dielectric strength between I/ Ambient operating | U | |
| -40 to +85°C (with no icing or condensation) | | | | temperature | | |
| Connection A: 35 Ω Connection B: 20 Ω | Connection A: 5 Ω Connection B: 2.5 Ω Connection C: 1.3 Ω | 35 Ω | 65 Ω | Maximum output ON resistance | Electrical | |
| Connection C: 10 Ω Connection C: 1.3 Ω | | | | Maximum OFF leakage current | Elect | |
| | Surface-mounting terminal | | | | | |
| | PCB terminals | Terminal | | | | |
| PCB mounting or Surface mounting | | | | Mounting method | | |
| | U | | | Applicable standard | s | |
| A 0.4 | Com | | A 0.05 | RoHS compliance | | |
| Approx. 0.4 g 155 | Approx 121 | . 0.54 g | Approx. 0.25 g 147 | Weight Page | | |
| 133 | 121 | J 0 | 171 | raye | | |

Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

Refer to pages 218 to 220 for detailed information on models certified for standards.

Page

Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

Refer to pages 218 to 220 for detailed information on models certified for standards.

| | For P | CBs | | Application | | | | | |
|--|---|--|---|--|------------------------|--------------------------------|----------------------------|-----|-------|
| G3VM-21GR1 | G3VM-21HR | G3VM-31HR | G3VM-41GR6 | | Model | | | | |
| | 1a (SPS | ST-NO) | | Cor | ntact form | | | | |
| 3.3 2.1 2.1 SOP4 | 5.3 2.1 4.4 8.7 2.1 SOP6 | 6.3 2 2.1 2.1 NEW SOP6 | 3.9 2.1 2.1 SOP4 | | ackage nm, Average | =) | | | |
| | High-current and Low-ON- | High-current and Low-ON- | | | | - | | | |
| Low-output-capacitance and Low-ON-resistance Type (with Low C × R) Load voltage: 20 V Low C × R = 5 pF · Ω Ron (typical) = 1 Ω | resistance Type Load voltage: 20 V Continuous load current : 2.5 A (5 A) max.* Values in parentheses are for connection C. | resistance Type • Load voltage: 30 V • Continuous load current: 4 A (8 A) max.* * Values in parentheses are for connection C. | Low-output-capacitance and Low-ON-resistance Type (with Low C × R) Load voltage: 40 V Low C × R = 10 pF · Ω COFF (typical) = 1 pF | | eatures | | | | |
| | Photodiod | e coupier | | AC peak | ion method | - | | | |
| 20 | V | 30 V | 40 V | DC DC | Load voltage | | | | |
| 300 mA | *Connection C 5,000 mA | *Connection C 8,000 mA | 120 mA | 2,000 AC | in type nnection C: | Output | Absolute maximum ratings | | |
| 50 mA 30 mA 50 mA | | | LED forward | | Input | | | | |
| | 1,500 VAC 50/6 | | | Dielectric strength between I/O | | | | | |
| -20 to +85°C -40 to (with no icing or condensation) (with no icing or | | +85°C | -20 to +85°C | Ambient | | | | | |
| (with no icing or condensation) 1.5Ω | Connection A: 0.05Ω Connection B: 0.025Ω Connection C: 0.005Ω (typical) | Connection A: 0.02Ω Connection B: 0.008Ω Connection C: 0.004Ω (typical) | (with no icing or condensation) $15 \ \Omega$ | | | temperature Maximum output ON | | put | rical |
| 1 nA (at 20 VDC) | 10 nA (at 20 VDC) | 1 μA (at 30 VDC) | 1 nA (at 30 VDC) | Maximum OF curre | F leakage nt | Output | Electrical characteristics | | |
| | ● (S | OP) | | Surface-moun | ting termina | ıls | inal | | |
| | | | | PCB terminals | | | Terminal structure | | |
| Surface mounting | | | | Mounting method | | | | | |
| | U | L | | Applica | ble standard | is | | | |
| | Comp | pliant | | RoHS | compliance | | | | |
| Approx. 0.1 g Approx. 0.13 g Approx. 0.1 g | | | | Weight | | | _ | | |
| Approx. 0.1 g | Approx. | 0.13 g | Approx. 0.1 g | , | Neight | | | | |

Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

Refer to pages 218 to 220 for detailed information on models certified for standards.

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^{*} Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

^{*} Refer to pages 218 to 220 for detailed information on models certified for standards.

| Product ⁻ | Table |
|----------------------|-------|
|----------------------|-------|

| | | Application | | | | | | |
|-----|---|--------------------------------|--|------------------------|--|--|-------------|----------------------------|
| | G3VM-61VY1 G3VM-61G1 G3VM-61G2 G3VM-61G3 G3VM-61VY2 | | | | Model | | | |
| | | Contact form | | | | | | |
| | 3.7 2.1 Special SOP4 | 3.9 2.1 4.4 1.2 2.1 SOP4 | 39 ² 21 39 ² 21 SOP4 | 39 21 44 21 SOP4 | 3.7 2.1 NEW Special SOP4 | Package (Unit : mm, Avera | ıge) | |
| | 17 | | | | General-purpose Type | | | |
| | General-purpose Type Load voltage: 60 V Dielectric strength between I/O: 3,750 VAC General-purpose Type Load voltage: 60 V Toge Load voltage: 60 V Toger LED forward current: 1 mA max. General-purpose Type Load voltage: 60 V Trigger LED forward current: 0.2 mA max. General-purpose Type Load voltage: 60 V Trigger LED forward current: 0.2 mA max. General-purpose Type Load voltage: 60 V Trigger LED forward current: 0.2 mA max. General-purpose Type Load voltage: 60 V Trigger LED forward current: 0.2 mA max. General-purpose Type Load voltage: 60 V Trigger LED forward current: 0.2 mA max. Trigger LED forward current: 0.2 mA max. | | | | | Features C | | |
| | | | Photodiode coupler | | | Isolation metho | d | |
| | | | 60 V | | | AC peak Load voltage | | |
| | 100 mA | 400 mA | 400 mA | 400 mA | 500 mA | 10,000 9,000 8,000 7,000 6,000 5,000 4,000 3,000 2,000 1,000 800 DC Continuous load current AC peak/ DC 6-pin type connection C DC DC LED forward current | nput Output | Absolute maximum ratings |
| | | | | | | | | |
| | 3,750 VAC 50/60 Hz for 1 min. | 1,5 -40 to + | 00 VAC 50/60 Hz for 1 n | nin. | 3,750 VAC 50/60 Hz for 1 min. -40 to +110°C | Dielectric strength betwee Ambient operating | n I/O | - |
| | | (with no icing or | | | (with no icing or condensation) | temperature Maximum output ON | | ş |
| | 50 Ω | | | 2 Ω | | resistance | Output | Electrical characteristics |
| | | Maximum OFF leakage current | 0 | Ele | | | | |
| | | Surface-mounting termi | nals | Terminal structure | | | | |
| | | | PCB terminals | | Ter | | | |
| | | Mounting metho | | | | | | |
| | | | Applicable standa RoHS complian | | | | | |
| l l | | | | | | | | |
| | | | Approx. 0.1 g | | | Weight | | |

Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

^{*} Refer to pages 218 to 220 for detailed information on models certified for standards.

| | | Applica | ation | | | For PCBs | | | |
|--------------------------|------------------|----------------------------|------------------|---|--|---|---|--|--|
| | | Mod | | G3VM-61VY3 | G3VM-61GR1 | G3VM-61GR2 | G3VM-61VR | G3VM-63G | |
| | | Contact | form | | 1a (SP: | ST-NO) | | 1b (SPST-NC) | |
| | (U | Packa nit : mm, | | 2.1 | 3.9 | 2.1 | 3.7 4.55 to 2.1 | 3.9 12.1 | |
| | | | | AUT IA | | <u>NEW</u> | NEW | A/FIA/ | |
| | | | | | | | | <u>NEW</u> | |
| | | | | Special SOP4 General-purpose Type Continuous load current: 0.7A max. Dielectric strength between I/O: 3,750 VAC High Ambient operating temperature: -40 to +110°C | High-current and Low-ON-resistance Type Load voltage: 60 V Continuous load current: 1 A max. | SOP4 High-current and Low-ON-resistance Type Load voltage: 60 V Continuous load current : 1.7 A max. | Special SOP4 • High-current and Low- ON-resistance Type • Continuous load current: 1.4 A max. • Dielectric strength between I/O: 3,750 VAC • High Ambient operating temperature: -40 to +110°C | SOP4 • General-purpose Type • Load voltage: 60 V • Contact form: 1b (SPST-NC) | |
| | | | | | | Photodiode coupler | | | |
| | | Load voltage | | | | 60 V | | | |
| Absolute maximum ratings | Load voltage | rrent 2,000 k/ DC 1,000 | 700 mA | 1,000 mA | 1,700 mA | 1,400 mA | 500 mA | | |
| | but | LED for | rward current | 30 mA | 50 mA | 30 mA | 50 mA | | |
| | | lectric stre | ngth between I/O | 3,750 VAC 50/60 Hz for 1 min. | 1,500 VAC 50/6 | L 60 Hz for 1 min. | 3,750 VAC 50/60 Hz for 1 min. | 1,500 VAC 50/60 Hz for 1 min. | |
| | | Ambien | t operating | -40 to +110°C | -20 to +85°C | -40 to +85°C | -40 to +110°C | -40 to +85°C | |
| rical eristics | but | Maximu | um output ON | (with no icing or condensation) | (with no icing or condensation) $0.7~\Omega$ | (with no icing or condensation) $0.13~\Omega$ | (with no icing or condensation) $0.25~\Omega$ | (with no icing or condensation) $2.5~\Omega$ | |
| Elect | Out | | | 1 μA (at 60 VDC) | 0.1 μA (at 60 VDC) | 0.01 μA (at 60 VDC) | 1 μA (at 60 | VDC) | |
| nal | Su | face-mou | inting terminals | | | ● (SOP) | | | |
| Termi struct | | PCB t | erminals | | | | | | |
| Special SOP4 SOP4 | Surface mounting | | | - | | | | | |
| | | • | | | | UL | | | |
| | F | | • | | i | Compliant | | | |
| | | | | | | | Approx. 0.1 g | | |
| | | Pag | е | 68 | 127 | 127 | 127 | 68 | |
| | | | | | | | | | |

^{*} Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

Refer to pages 218 to 220 for detailed information on models certified for standards.

| | Application | | | | |
|---|---|--|----------------------|---|--------------------------|
| G3VM-61H1 | G3VM-61HR | CBs G3VM-61HR1 | G3VM-62J1 | Model | |
| G3VW-61F1 | | G3VM-01HH1 | | | |
| 6.3 | 1a (SPST-NO) | 6.3 | 2a (DPST-NO) | Contact form Package (Unit : mm, Average) | |
| SOP6 | SOP6 | NEW SOP6 | SOP8 | | |
| General-purpose Type Load voltage: 60 V | Features | | | | |
| | Photodioo | de coupler | I. | Isolation method | |
| | 60 | V | | AC peak Load voltage | |
| *Connection C 800 mA | * Connection C - 4,600 mA | * Connection C 6,600 mA | 400 mA | 10,000 9,000 8,000 7,000 6,000 5,000 4,000 1,000 1,000 1,000 6-pin type connection C: DC 700 600 400 300 200 100 | Absolute maximum ratings |
| 50 mA 30 mA 1.500 VAC 50/60 Hz for 1 min. | | | 50 mA | LED forward current Dielectric strength between I/O | |
| | | +85°C | | Ambient operating | |
| | (with no icing o | r condensation) | | temperature | |
| Connection A: 2 Ω Connection B: 1 Ω Connection C: 0.25 Ω (typical) | Connection A: 0.07Ω Connection B: 0.04Ω Connection C: 0.01Ω (typical) | Connection A: 0.06Ω Connection B: 0.015Ω (typical) Connection C: 0.008Ω (typical | 2 Ω | Maximum output ON resistance | Electrical |
| 1 μA (at 60 VDC) | 10 nA (at 60 VDC) | 0.02 μA (at 60 VDC) | 1 μA (at 60 VDC) | Maximum OFF leakage current | Elec |
| | Surface-mounting terminals | Terminal | | | |
| | | | | PCB terminals | Ter |
| | | mounting | | Mounting method | |
| | | JL pliant | | Applicable standards | |
| Approx. 0.1 g | RoHS compliance Weight | | | | |
| 88 | Approx 131 | 131 | Approx. 0.2 g 104 | Page | |
| | 101 | 101 | 104 | i age | |

Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

^{*} Refer to pages 218 to 220 for detailed information on models certified for standards.

| Application | | | For PCBs | | | | | |
|----------------------------|--------|---|---|---|---|--|--|--|
| | | Model | G3VM-81GR | G3VM-81GR1 | G3VM-81G1 | G3VM-81HR | | |
| | | Contact form | | 1a (SP | ST-NO) | | | |
| | (U | Package nit : mm, Average) | 339 21 21 SOP4 | 3.3 2.1 SOP4 | 3.9 2.1 4.4 2.1 SOP4 | 6.3 4.4 50 80P6 | | |
| | | Features | Low-output-capacitance and Low-ON-resistance Type (with Low C × R) Load voltage: 80 V | Low-output-capacitance and Low-ON-resistance Type (with Low C × R) Load voltage: 80 V | General-purpose Type Load voltage: 80 V | High-current and Low-ON-resistance Type Load voltage: 80 V Continuous load current: 1.25 A (2.5 A) max.* Values in parentheses are for connection C. | | |
| | . 1 | Isolation method | | Photodio | de coupler | | | |
| | | Load AC peak | | 80 |) V | | | |
| | | voltage DC | | | Т | T | | |
| Absolute maximum ratings | Output | 10,000 9,000 8,000 7,000 6,000 4,000 2,000 4000 2,000 6-pin type connection C: DC 800 700 600 500 400 300 200 100 | 40 mA | 200 mA | 350 mA | * Connection C - 2,500 mA - 1,250 mA | | |
| | Input | LED forward current | | 50 | mA | | | |
| | | lectric strength between I/O | | 1,500 VAC 50/ | 60 Hz for 1 min. | | | |
| | | Ambient operating | | -20 to | +85°C | | | |
| ical | nt | temperature Maximum output ON resistance | 25 Ω | (with no icing o 8 Ω | r condensation) | Connection A: $0.15~\Omega$ Connection B: $0.08~\Omega$ Connection C: $0.04~\Omega$ | | |
| Electrical characteristics | Output | Maximum OFF leakage current | 1 nA (at | 80 VDC) | 1 nA (at 30 VDC) | 1.5 nA (at 20 VDC) | | |
| | Sui | rface-mounting terminals | | • (5 | SOP) | | | |
| Terminal structure | | PCB terminals | | | | | | |
| | | Mounting method | | Surface | mounting | | | |
| | Ap | plicable standards | | l | IL | | | |
| | F | RoHS compliance | | | pliant | | | |
| | | Weight | | | x. 0.1 g | | | |
| | | Page | 165 | 165 | 73 | 137 | | |
| | | · | · | · | · | · | | |

^{*} Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

Refer to pages 218 to 220 for detailed information on models certified for standards.

| | Application | | | | | | | |
|--|--|--|---|--|---------------------------------|--------|--------------------------|--|
| G3VM-101HR G3VM-101HR1 | | G3VM-201G | G3VM-201G1 | Model | | | | |
| 1a (SPST-NO) | | | | | Contact form | | | |
| 6.3 2.1 | 33 221 21 21 21 21 21 21 21 21 21 21 21 21 | | | | Package (Unit : mm, Average) | | | |
| SOP6 | SOP6 | SOP4 | SOP4 | | | | | |
| High-current and Low-ON-resistance Type Load voltage: 100 V Continuous load current: 1.4 A (2.8 A) max.* Values in parentheses are for connection C. | High-current and Low-ON-resistance Type Load voltage: 100 V Continuous load current: 2 A (4 A) max.* Values in parentheses are for connection C. | General-purpose Type Load voltage: 200 V | General-purpose Type Load voltage: 200 V Trigger LED forward current: 1 mA max. | Features | | | | |
| | Photodioc | de coupler | | | ion method | | | |
| 100 | o V | 20 | 0 V | AC peak DC | Load voltage | | | |
| - Connection C | *Connection C 4,000 mA | 50 mA | 200 mA | 2,000 AC C C C C C C C C C C C C C C C C C | in type nnection C: | | Absolute maximum ratings | |
| 30 | | 50 | LED forward curren | | Input | | | |
| | 1,500 VAC 50/6 | 60 Hz for 1 min. +85°C | | Dielectric stren | | /0 | | |
| | (with no icing o | r condensation) | Ambient operating temperature | | | | | |
| Connection A: 0.2Ω Connection B: 0.1Ω Connection C: 0.025Ω (typical) | Connection A: $0.045~\Omega$ Connection B: $0.022~\Omega$ Connection C: $0.011~\Omega$ (typical) | 50 Ω | 8 Ω | Maximum or resista | | Output | Electrical | |
| 10 nA (at 100 VDC) | 1 μA (at 100 VDC) | 1 nA (at 160 VDC) | 1 μA (at 200 VDC) | Maximum OF curre | F leakage nt | อี | Elec | |
| ● (SOP) | | | | | ting termina | | Terminal | |
| | | | | | PCB terminals | | Ler | |
| Surface mounting | | | | | Mounting method | | | |
| | | IL pliant | | | ble standard | ıs | | |
| Compliant Approx 0.13 g | | | | | RoHS compliance Weight | | | |
| Approx. 0.13 g Approx. 0.1 g 137 77 77 | | | | | Page | | | |

Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

Refer to pages 218 to 220 for detailed information on models certified for standards.

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Page

^{*} Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

^{*} Refer to pages 218 to 220 for detailed information on models certified for standards.

PCB terminals

Mounting method

Applicable standards

RoHS compliance

Weight

Page

For PCBs Application G3VM-351G1 G3VM-351G G3VM-351VY G3VM-351GL Model 1a (SPST-NO) Contact form Package (Unit : mm, Average) NEW Special SOP4 General-purpose Type General-purpose Type Load voltage: 350 V · Current-limiting Type Load voltage: 350 V Dielectric strength between · General-purpose Type Load voltage: 350 V Features Trigger LED forward current Load voltage: 350 V I/O: 3.750 VAC . Current limit: 150 to 300 mA High Ambient operating : 1 mA max. temperature: -40 to +110°C Photodiode coupler Isolation method AC peak Load 350 V voltage DC 10,000 9,000 8,000 7.000 6 000 5.000 4,000 3,000 Continuous Absolute maximum ratings load current 2.000 AC peak/ DC 1,000 6-pin type 900 connection C 800 700 600 500 400 Current limiting 300 (Current limit: 150 to 300 mA) 200 120 mA 100 mA 110 mA 110 mA 100 50 mA 30 mA 50 mA LED forward current 1,500 VAC 50/60 Hz for 1 min. 3.750 VAC 50/60 Hz for 1 min. 1.500 VAC 50/60 Hz for 1 min. Dielectric strength between I/O -40 to +85°C -40 to +110°C -40 to +85°C Ambient operating (with no icing or condensation) (with no icing or condensation) (with no icing or condensation) temperature Maximum output ON 50 Ω 35 O resistance Output Maximum OFF leakage 1 μA (at 350 VDC) current Surface-mounting terminals (SOP)

Approx. 0.03 g

Approx. 0.1 g

159

Surface mounting

Compliant

Approx. 0.1 g

82

Ш

82

Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

Refer to pages 218 to 220 for detailed information on models certified for standards.

Absolute maximum

6-pin type

connection C: DC

LED forward current

Dielectric strength between I/O Ambient operating

temperature

Maximum output ON

resistance

Maximum OFF leakage

current Surface-mounting terminals

PCB terminals

Mounting method

Applicable standards

RoHS compliance

Weight

Page

900

300

200

100

120 mA

25 Ω

Approx. 0.1 g

82

| 0 | duct Ta | able | | | | |
|-------------------------|-----------------------------|---|---|--|---|--|
| | Application | | | For | PCBs | |
| | Model | | G3VM-353G | G3VM-351H | G3VM-353H | G3VM-355JR |
| | Contact form | | 1b (SPST-NC) | 1a (SPST-NO) | 1b (SPST-NC) | 1a1b (SPST-NO/SPST-NC) |
| (Ui | Package nit : mm, Averag | e) | 239 21 4.4 12.1 | 6.3 | 6,3 | 9.4 |
| | | | SOP4 | SOP6 | SOP6 | SOP8 |
| | Features | | General-purpose Type Load voltage: 350 V Contact form: 1b (SPST-NC) | General-purpose Type Load voltage: 350 V | General-purpose Type Load voltage: 350 V Contact form: 1b (SPST-NC) | Multi-contact-pair Type Load voltage: 350 V Contact form: 1a1b (SPST-NO/SPST-NC) |
| ı | solation method | | | Photodio | de coupler | |
| Load AC peak voltage DC | | | | 35 | 0 V | |
| t t | Continuous | 10,000 9,000 8,000 7,000 6,000 5,000 4,000 3,000 | | | | |
| m ratings Output | load current AC peak/ DC | 2,000 1.000 | | | + | |

* Connection C

220 mA

Connection A: 50 Ω

Connection B: 40 Ω

Connection C: 20 Ω

110 mA

- - * Connection C

Connection A: 25 Ω

Connection B: 14 Ω

Connection C: 4 Ω (typical)

88

- 120 mA

25 Ω

Approx. 0.2 g

104

120 mA

1,500 VAC 50/60 Hz for 1 min.

-40 to +85°C

(with no icing or condensation)

1 μA (at 350 VDC)

● (SOP)

Surface mounting

UL

Compliant

Approx. 0.13 g

| * (| Only basic specifications are given in this table | . Refer to the reference page given in the table f | or detailed specifications and precau | tions before you attempt to use a Relay. |
|-----|---|--|---------------------------------------|--|
|-----|---|--|---------------------------------------|--|

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Refer to pages 218 to 220 for detailed information on models certified for standards.

| | For I | PCBs | | Application | | |
|--|--|--|--|---------------------------------|--------------------------|--|
| G3VM-352J | G3VM-354J | G3VM-401G1 | G3VM-401G | Model | | |
| 2a (DPST-NO) | 2b (DPST-NC) | 1a (SP: | ST-NO) | Contact form | | |
| 9.4 | 9.4 | 3.9 2.1 4.4 12.1 | 2.1 | Package (Unit : mm, Average) |) | |
| SOP8 | SOP8 | SOP4 | SOP4 | | | |
| Multi-contact-pair Type Load voltage: 350 V Contact form: 2a (DPST-NO) | Multi-contact-pair Type Load voltage: 350 V Contact form: 2b (DPST-NC) | General-purpose Type Load voltage: 400 V Trigger LED forward current : 0.2 mA max. | General-purpose Type Load voltage: 400 V | Features | | |
| | Photodio | de coupler | | Isolation method | | |
| হন | 0 V | 40 | n V | AC peak Load | | |
| 110°mA | 120 mA | 100 mA | 120 mA | DC voltage | Absolute maximum ratings | |
| 50 | mA | 30 mA | 50 mA | LED forward current | L | |
| | 1,500 VAC 50/0 | 60 Hz for 1 min. | <u> </u> | Dielectric strength between I/O | | |
| | -40 to | +85°C or condensation) | | Ambient operating temperature | | |
| 50 Ω | 25 Ω | 35 | Ω | Maximum output ON | Electrical | |
| 1 μA (at 3 | 350 VDC) | 1 μA (at 4 | 400 VDC) | Maximum OFF leakage current | Elect | |
| | Surface-mounting terminals | Terminal | | | | |
| | | | | PCB terminals | Tern | |
| | | Mounting method | | | | |
| U | JL | UL certification is pending pliant | Applicable standards | s | | |
| | | RoHS compliance | | | | |
| | x. 0.2 g | Approx | | Weight | | |
| 104 | 104 | 82 | 82 | Page | | |

^{*} Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

^{*} Refer to pages 218 to 220 for detailed information on models certified for standards.

Approx. 0.2 g

Compliant

Approx. 0.1 g

94

94

Refer to pages 218 to 220 for detailed information on models certified for standards.

Approx. 0.13 g

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RoHS compliance

Weight

Page

| | For I | PCBs | | Application | | Т |
|--|--|---|---|--|--------|-----------------------------|
| G3VM-21LR | G3VM-21LR10 | G3VM-21LR1 | G3VM-21LR11 | Model | | |
| | 1a (SP | ST-NO) | | Contact form | | |
| 2.04 | 2.04 | 2.04 | 2.04 | Package (Unit : mm, Averag | je) | |
| SSOP4 | SSOP4 | SSOP4 • Low-output-capacitance | SSOP4 | | | _ |
| Low-output-capacitance and Low-ON-resistance Type (with Low C × R) Load voltage: 20 V Low C × R = 5 pF · Ω Corr (typical) = 1 pF | Low-output-capacitance and Low-ON-resistance Type (with Low C × R) Load voltage: 20 V Low C × R = 2.4 pF · Ω Coff (typical) = 0.8 pF | and Low-ON-resistance Type (with Low C \times R) • Load voltage: 20 V • Low C \times R = 4 pF \cdot Ω • Ron (typical) = 0.8 Ω | Low-output-capacitance and Low-ON-resistance Type (with Low C × R) Load voltage: 20 V Low C × R = 7.2 pF · Ω Ron (typical) = 0.18 Ω | Features | | |
| | Photodio | de coupler | | Isolation method AC peak Load | 1 | _ |
| | 20 | O V | | AC peak Load voltage | | |
| 160 mA | 200 mA | 450 mA | 900 mA | - 10,000 - 9,000 - 8,000 - 7,000 - 6,000 - 5,000 - 4,000 - 3,000 - Continuous load current AC peak DC - 6-pin type - connection C: - DC - DC - CONTINUOUS - CONTINUOUS - 6-pin type - CONNECTION C: - DC - CONTINUOUS | Output | About the maximum satisface |
| 50 MA | | 60 Hz for 1 min. | MA | | _ | |
| | | +85°C | | Dielectric strength between Ambient operating | .,0 | |
| 8Ω | | or condensation) | 0.22 Ω | temperature Maximum output ON | ını | ical |
| 1 nA (at 20 VDC) | 0.2 nA (at 20 VDC) | 1 nA (at | 20 VDC) | Maximum OFF leakage current | Output | Electrical |
| | Surface-mounting termin | | | | | |
| | PCB terminals | | Terminal | | | |
| | Mounting method | d | | | | |
| | Applicable standar | | | | | |
| | | pliant | | RoHS compliance | е | |
| 170 | Approx 170 | r. 0.03 g | 170 | Weight Page | | |

Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

Refer to pages 218 to 220 for detailed information on models certified for standards.

^{*} Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

Refer to pages 218 to 220 for detailed information on models certified for standards.

| | | Application | | | | |
|--|---|---|--|--|------------|-------------------------------|
| G3VM-41LR5 | G3VM-61LR | G3VM-81LR | G3VM-101LR | Model | | |
| | 1a (SP | ST-NO) | | Contact form | | |
| 2.04 3.8 SSOP4 | 2.04 3.8 SSOP4 | 2.04 3.8 SSOP4 | 1.8 2.04 3.8 SSOP4 | Package (Unit : mm, Average | =) | |
| Low-output-capacitance and Low-ON-resistance Type (with Low C \times R) Low d voltage: 40 V Low C \times R = 10 pF \cdot Ω Ron (typical) = 1 Ω | Small and High-load-voltage Type Load voltage: 60 V Ron (typical) = 1 Ω | Small and High-load-voltage Type Load voltage: 80 V | Small and High-load-voltage Type Load voltage: 100 V | Features | | |
| .,, | Photodio | de coupler | | Isolation method | | |
| 40 V | 60 V | 80 V | 100 V | AC peak Load voltage | | |
| 300 mA | 400 mA | 120 mA | 80 mA | 900 connection C: 800 DC - 700 - 600 - 500 - 400 - 300 - 200 - 100 | Output | Absolute maximum ratings |
| | 50 | mA | | LED forward current | Input | |
| | | Dielectric strength between I/ | /0 | | | |
| | | +85°C r condensation) | | Ambient operating temperature | | |
| 1.5 | 5 Ω | 12 Ω | 14 Ω | Maximum output ON resistance | that | Electrical characteristics |
| 1 nA (at 30 VDC) | 1 μA (at 60 VDC) | 0.2 nA (a | t 80 VDC) | Maximum OFF leakage current | 5 | Elect charact |
| | Surface-mounting termina | | | | | |
| | PCB terminals | | Terminal structure | | | |
| | | Mounting method | | | | |
| | | JL | | Applicable standard | | |
| | | pliant | ·- | RoHS compliance | | |
| | | . 0.03 g | | Weight | | |
| 175 | 204 | 204 | 204 | Page | | |

Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

Refer to pages 218 to 220 for detailed information on models certified for standards.

Application

| | Model | | | G3VM-21PR10 | G3VM-21PR1 | G3VM-21PR11 | G3VM-41PR12 | |
|-------|--------------------------|--------|--|--|--|--|--|--|
| r | | | Contact form | | 1a (SP: | ST-NO) | | |
| | | (U | Package nit : mm, Average) | 1,65 2,2 2,85 | 1,65 2,2 USOP4 | 1.65 2.2 2.85 | 1.65 2.2 USOP4 | |
| | | | Features | Low-output-capacitance and Low-ON-resistance Type (with Low C × R) Load voltage: 20 V Low C × R = 2.4 pF · Ω | • Low-output-capacitance and Low-ON-resistance Type (with Low $C \times R$) • Load voltage: 20 V • Low $C \times R = 3 \text{ pF} \cdot \Omega$ | Low-output-capacitance and Low-ON-resistance Type (with Low C × R) Load voltage: 20 V Low C × R = 7.2 pF · Ω | Low-output-capacitance and Low-ON-resistance Type (with Low C × R) Load voltage: 40 V Low C × R = 4.5 pF · Ω | |
| H | | _ | Isolation method | Coff (typical) = 0.8 pF | • Ron (typical) = 0.6 Ω Photodioc | • Ron (typical) = 0.18 Ω to sounder. | Coff (typical) = 0.3 pF | |
| F | | | Load AC peak | | | ae coupiel | | |
| | | | voltage DC | | 20 V | | 40 V | |
| | Absolute maximum ratings | Output | 10,000 9,000 8,000 7,000 6,000 5,000 4,000 1,0 | 200 mA | 450 mA | 900 mA | 100mA | |
| | | Input | LED forward current | | 50 | mA | | |
| | | | lectric strength between I/O | | 500 VAC 50/6 | 0 Hz for 1 min. | | |
| | | | Ambient operating | | -40 to | +85°C | | |
| 100 | ristics | nıt | temperature Maximum output ON resistance | 5 Ω | (with no icing o 1.2 Ω | r condensation) 0.22 Ω | 20 Ω | |
| Floor | characteristics | Output | Maximum OFF leakage current | | 1 nA (at 20 VDC) | | 1 nA (at 40 VDC) | |
| | | Su | rface-mounting terminals | | ● (U | SOP) | | |
| Tomi | structure | | PCB terminals | | | | | |
| | | | Mounting method | | Surface | | | |
| F | | | policable standards RoHS compliance | | | IL pliant | | |
| F | | | Weight | | Approx | | | |
| H | | | Page | 180 | 180 | 180 | 185 | |
| _ | Page | | | | | | | |

For PCBs

^{*} Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

Refer to pages 218 to 220 for detailed information on models certified for standards.

| | For F | PCBs | | Application | 1 | | | |
|---|--|--------------------------|------------|---|--------|----------------------------|--|--|
| G3VM-41PR10 | G3VM-41PR6 | G3VM-41PR11 | G3VM-41PR5 | Model | | | | |
| | 1a (SP: | ST-NO) | | Contact form | | | | |
| 1,65 | 1a (SPST-NO) 1.65 2.85 1.65 2.2 2.85 1.65 2.2 2.85 2.2 2.85 2.85 2.2 2.85 | | | | | | | |
| USOP4 • Low-output-capacitance and Low-ON-resistance Type (with Low C \times R) • Load voltage: 40 V • Low C \times R = 5.4 pF · Ω • Coff (typical) = 0.45 pF | USOP4 • Low-output-capacitance and Low-ON-resistance Type (with Low C \times R) • Load voltage: 40 V • Low C \times R = 10 pF · Ω • Ron (typical) = 1 Ω | Features | | | | | | |
| | Isolation met | | 1 | | | | | |
| | AC peak Load | | | | | | | |
| 120 mA | 120 mA | 140 mA | 300 mA | - 10,000 9,000 8,000 7,000 6,000 5,000 4,000 2,000 1,000 900 6-pin type connection DC 700 600 500 400 300 200 100 | t C C: | Absolute maximu | | |
| | 50 | | | LED forward curren | 드 | | | |
| | 500 VAC 50/6 | 0 Hz for 1 min. +85°C | | Dielectric strength betwee Ambient operatin | | , | | |
| | | temperature | y | | | | | |
| 14 Ω | 15 Ω | 10 Ω | 1.5 Ω | Maximum output ON resistance | Output | Electrical characteristics | | |
| 1 nA (at 40 VDC) | Maximum OFF leakag current | e Ino | Elect | | | | | |
| | Surface-mounting terr | ninals | Terminal | | | | | |
| | PCB terminals | | Ter | | | | | |
| | | mounting | | Mounting method | | | | |
| | | IL | | Applicable stan | | ; | | |
| | | pliant | | RoHS complia | псе | | | |
| 105 | Approx | | 105 | Weight | | | | |
| 185 | 185 | 185 | 185 | Page | | | | |

Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

Refer to pages 218 to 220 for detailed information on models certified for standards.

| | | Application | | For PCBs | | |
|----------------------------|--------|--|---|--|---|--|
| | | Model | G3VM-51PR | G3VM-61PR1 | G3VM-61PR | |
| | | Contact form | | 1a (SPST-NO) | | |
| | (u | Package nit : mm, Average) | 1.65 | 1.65 | 1.85 | |
| | | | USOP4 | USOP4 | USOP4 | |
| | | Features | • Low-output-capacitance and Low-ON-resistance Type (with Low C x R) • Load voltage: 50 V • Low C x R = $12 \text{ pF} \cdot \Omega$ • Rox (typical) = 1Ω | • Small and High-load-voltage Type • Load voltage: 60 V • Low C × R = 7 pF · Ω • Coff (typical) = 0.7 pF | Small and High-load-voltage Type Load voltage: 60 V | |
| | | Isolation method | | Photodiode coupler | | |
| | | Load AC peak DC | 50 V | 60 |) V | |
| Absolute maximum ratings | Output | 10,000 9,000 8,000 7,000 6,000 5,000 4,000 2,000 8,000 7,000 1,0 | 300 mA | 120 mA | 400 mA | |
| | Input | LED forward current | | 50 mA | | |
| | | lectric strength between I/O | | 500 VAC 50/60 Hz for 1 min. | | |
| | | Ambient operating temperature | | -40 to +85°C (with no icing or condensation) | | |
| rical eristics | put | Maximum output ON resistance | 1.5 Ω | 15 Ω | 1.5 Ω | |
| Electrical characteristics | Output | Maximum OFF leakage current | 1 nA (at 50 VDC) | 1 nA (at | 60 VDC) | |
| | | rface-mounting terminals | | • (USOP) | | |
| Terminal structure | | PCB terminals | | | | |
| | | Mounting method | | Surface mounting | | |
| | | plicable standards | | UL | | |
| | _ ' | RoHS compliance Weight | | Compliant Approx. 0.03 g | | |
| | | Page | 185 | 208 | 208 | |
| | | | | 1 | , | |

^{*} Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

Refer to pages 218 to 220 for detailed information on models certified for standards.

| | For PCBs | For PCBs | | | |
|---|---|--|--|--|----------------------|
| G3VM-71PR | G3VM-81PR | G3VM-101PR | Mode | ı | |
| | 1a (SPST-NO) | | Contact t | orm | |
| 1.65 | 1.65 | 1.85 | Packaj (Unit : mm, A | |) |
| USOP4 | USOP4 | USOP4 | | | |
| Small and High-load-voltage Type Load voltage: 75 V | Small and High-load-voltage Type Load voltage: 80 V Maximum OFF leakage current : 0.02 nA | Small and High-load-voltage Type Load voltage: 100 V | Featur | es | |
| | Photodiode coupler | | Isolation m | ethod | |
| 75 V | 80 V | 100 V | | oad tage | |
| 400 mA | 120 mA | 100 mA | 10,000 9,000 8,000 7,000 6,000 5,000 4,000 2,000 1,000 DC 700 6600 500 4,000 300 2,000 4,000 DC 700 6,000 6, | rent and of the control of the contr | - Ahouston chilosoph |
| | 50 mA | | LED forward curr | _ | |
| | 500 VAC 50/60 Hz for 1 min. -40 to +85°C | | Dielectric strength be | | J |
| | -40 to +85°C (with no icing or condensation) | | Ambient opera temperature | ung e | |
| 1.5 Ω | 12 Ω | 14 Ω | Maximum output resistance | | Electrical |
| 1 nA (at 75 VDC) | 0.02 nA (at 80 VDC) | 0.2 nA (at 100 VDC) | Maximum OFF leal current | cage O | Elect |
| | Surface-mounting t | erminal | Terminal | | |
| | PCB termina | ls | Terr | | |
| | Mounting n | | | | |
| | Applicable st | | s | | |
| | Compliant | | RoHS comp | | |
| 208 | Approx. 0.03 g 208 | 208 | Weigh Page | | |
| 200 | 200 | 200 | rage | | |

Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

Refer to pages 218 to 220 for detailed information on models certified for standards.

| _ | | | | | | | | | | ı |
|---------|---------------------------------|--------|--------------------|-------------------------|------------|--|--|---|--|---|
| | | | Applica | | | | For F | | | |
| | | | Mod | | | G3VM-21UR10 | G3VM-21UR1 | G3VM-21UR11 | G3VM-41UR12 | |
| | | | Contact | form | | | 1a (SP | ST-NO) | | |
| | | (Ui | Packa nit : mm, | age Average) | | 2.45 | 2.45 | 2.45 | 2.45 | |
| | | | | | | VSON4 | VSON4 | VSON4 | VSON4 | |
| | | | Featu | | | Low-output-capacitance and Low-ON-resistance Type (with Low C × R) Load voltage: 20 V Low C × R = 2.4 pF · Ω Coff (typical) = 0.8 pF | $ \begin{tabular}{ll} \bullet Low-output-capacitance\\ and Low-ON-resistance\\ Type (with Low C \times R)\\ \bullet Load voltage: 20 V\\ \bullet Low C \times R = 4 pF \cdot \Omega\\ \bullet Row (typical) = 0.8 \ \Omega\\ \end{tabular} $ | Low-output-capacitance and Low-ON-resistance Type (with Low C × R) Load voltage: 20 V Low C × R = 7.2 pF · Ω Row (typical) = 0.18 Ω | Low-output-capacitance and Low-ON-resistance Type (with Low C × R) Load voltage: 40 V Low C × R = 4.5 pF · Ω Coff (typical) = 0.3 pF | |
| | | ı | solation i | | | | Photodioo | de coupler | | |
| | | | Load voltage | AC pea | k | | 20 V | | 40 V | |
| | | | | | ,000 | | | | | |
| | | | | | ,000, | . – – – – – – – – – – – – – – – – – – – | | | + | |
| | | | | | ,000 | | | | | |
| | | | | | ,000, | | + | + | + | |
| l | n n | | Continu | | ,000 | | | | | |
| 1 | ADSOIUTE IIIAXIIIIUIII TALIIIYS | Output | load cu AC peal | rrent 2 | ,000 | | | 1,000 mA | | |
| | | 0 | * 6-pin ty | pe ' | 900 | | | 1,000 IIIA | | |
| | gy | | DC | | 800 | | | | | |
| 1 | an | | | | 700 600 | | | | | |
| 3 | DSC | | | | 500 | | 450 mA | [| | |
| • | 1 | | | | 400 | . – – – – – – – – – | | | | |
| | | | | | 300 | 200 mA | | | | |
| | | | | | 200 100 | | | | 100 mA | |
| | | Input | I ED fo | rward curre | nt | | 30 | mA | | |
| | | | | ength betwee | | | 300 VAC 50/6 | | | |
| | | | Ambien | t operating perature | | | -40 to | +85°C | | |
| _ | tics | | Maxim | um output (| ON | 5 Ω | (with no icing o | r condensation) 0.22 Ω | 20 Ω | |
| ectrica | characteristics | Output | Maximu | sistance m OFF leak | age | | 1 nA (at 20 VDC) | | 1 nA (at 40 VDC) | |
| | | | | current unting termi | inal- | | | SON) | 1 11/2 (at 40 VDO) | |
| Termina | structure | Jur | | terminals | iiais | | ● (v: | | | |
| | | N | lounting | | | | Surface | mounting | | |
| - | | Ap | plicable s | standards | | | UL certification | on is pending | | |
| | | | oHS com | | | | | pliant | | |
| | | | Weig | - | | | | . 0.01 g | | |
| | | | Pag | e | | 190 | 190 | 190 | 195 | |
| | | | | | | | | | | |

^{*} Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

Refer to pages 218 to 220 for detailed information on models certified for standards.

| | For F | PCBs | | Application | |
|---|---|--|---|---|------------|
| G3VM-41UR10 | G3VM-41UR11 | G3VM-51UR | G3VM-61UR1 | Model | |
| | 1a (SP: | ST-NO) | | Contact form | |
| 2.45 | 2.45 | 2.45 1.45 | 2.45 | Package (Unit : mm, Average) |) |
| VSON4 | VSON4 | VSON4 | VSON4 | | |
| • Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 40 V • Low C × R = 5.4 pF · Ω • Coff (typical) = 0.45 pF | $ \begin{tabular}{ll} \bullet Low-output-capacitance \\ and Low-ON-resistance \\ Type (with Low C \times R) \\ \bullet Load voltage: 40 V \\ \bullet Low C \times R = 4.9 \ pF \cdot \Omega \\ \bullet Coff (typical) = 0.7 \ pF \\ \end{tabular} $ | • Low-output-capacitance and Low-ON-resistance Type (with Low C \times R) • Load voltage: 50 V • Low C \times R = 12 pF · Ω • Ron (typical) =1 Ω | $ \begin{tabular}{ll} \bullet Low-output-capacitance \\ and Low-ON-resistance \\ Type (with Low C \times R) \\ \bullet Load voltage: 60 V \\ \bullet Low C \times R = 7 \ pF \cdot \Omega \\ \bullet Coff (typical) = 0.7 \ pF \\ \end{tabular} $ | Features | |
| | Photodioo | de coupler | | Isolation method | |
| 40 | V | 50 V | 60 V | AC peak Load voltage | |
| | | | | - 10,000 - 9,000 | |
| | | | | - 8,000 - 7,000 - 6,000 | |
| | | | | - 5,000 - 4,000 | |
| | | | | - 3,000 Continuous 2,000 load current 1,000 AC peak/ DC | |
| | | | | - 900 connection C: - 800 DC | |
| | · | + | | - 700 - 600 - 500 | |
| | | 300 mA | | - 400 - 300 | |
| · 120 mA · | 140 mA | | 120 mA | - 200 - 100 | |
| | | mA | | LED forward current | |
| | 300 VAC 50/6 | | | Dielectric strength between I/C | 3 |
| | -40 to (with no icing o | +85°C r condensation) | | Ambient operating temperature | |
| 14 Ω | 10 Ω | 1.5 Ω | 15 Ω | Maximum output ON resistance Maximum OFF leakage | Flactrical |
| 1 nA (at 40 VDC) | | 1 nA (at 50 VDC) | 1 nA (at 60 VDC) | Maximum OFF leakage current | , 1 |
| | Surface-mounting terminals | S | | | |
| | PCB terminals Mounting method | F | | | |
| | UL certification | mounting on is pending | | Applicable standards | 5 |
| | | pliant | | RoHS compliance | |
| | Approx | | | Weight | |
| 195 | 195 | 195 | 213 | Page | |

Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

Refer to pages 218 to 220 for detailed information on models certified for standards.

| | | Application | | For PCBs | | | | | | |
|-------------------------------|--------|--|--|--|---|--|--|--|--|--|
| | | Model | G3VM-61UR | G3VM-81UR | G3VM-81UR1 | G3VM-101UR | | | | |
| | | Contact form | | 1a (SP: | ST-NO) | | | | | |
| | (U | Package Init : mm, Average) | 2.45 | 2.45 | 2.45 | 2.45 | | | | |
| | | | VSON4 | VSON4 | VSON4 | VSON4 | | | | |
| | | Features | Small and High-load-voltage Type Load voltage: 60 V Ron (typical) =1 Ω | Small and High-load-voltage Type Load voltage: 80 V Maximum OFF leakage current: 0.02 nA | Small and High-load- voltage Type Load voltage: 80 V | Small and High-load-voltage Type Load voltage: 100 V | | | | |
| | | Isolation method | | Photodioc | le coupler | | | | | |
| | | Load AC peak voltage DC | - 60 V | 80 | V | 100 V | | | | |
| Absolute maximum ratings | Output | 10,000 9,000 8,000 7,000 6,000 5,000 4,000 Continuous Ioad current AC peak/ DC 6-pin type connection C: DC 800 700 600 500 400 300 200 | 400 mA | 120 mA | 200 mA | 100 mA | | | | |
| | Input | LED forward current | | 30 | mA | | | | | |
| | | electric strength between I/C | | 300 VAC 50/6 | | | | | | |
| | | Ambient operating temperature | | -40 to (with no icing o | | | | | | |
| rical | put | Maximum output ON resistance | 1.5 Ω | 12 Ω | 8 Ω | 14 Ω | | | | |
| Electrical characteristics | Output | Maximum OFF leakage current | 1 nA (at 60 VDC) | 0.02 nA (at 80 VDC) | 1 nA (at 80 VDC) | 0.2 nA (at 100 VDC) | | | | |
| Terminal structure | Sur | rface-mounting terminals | 3 | • (V: | SON) | | | | | |
| Struc | | PCB terminals | | | | | | | | |
| | ı | Mounting method | | Surface i | mounting | | | | | |
| | | oplicable standards | | UL certification | | | | | | |
| | F | RoHS compliance Weight | | Com _l Approx | | | | | | |
| | | Page | 213 | 213 | 213 | 213 | | | | |

^{*} Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

Refer to pages 218 to 220 for detailed information on models certified for standards.

| | | Application | | | | | |
|--|--|--|-------------------------------|-----------------------|---|-------------|--------------------------|
| G3VM-31QR | G3VM-41QR10 | G3VM-61QR | G3VM-61QR2 | G3VM-101QR1 | Mode | ı | |
| | | 1a (SPST-NO) | | | Contact f | orm | |
| 1.65 1.45 | 2.0 1.3 NEW S-VSON(L)4 | 2.0 1.65 1.45 NEW | 2.0 1.65 NEW S-VSON4 | 2.0 1.65 NEW | Packaş (Unit : mm, A | | |
| S-VSON4 • New small S-VSON package • Load voltage: 30 V • Continuous load current :1.5 A max. • High Ambient operating temperature: -40 to +110°C | S-VSON4 • New small S-VSON package • Load voltage: 100 V • Continuous load current: 0.65A max. • High Amblient operating temperature: -40 to +110°C | Feature | | | | | |
| | | Isolation m | ethod | | | | |
| 30 V | 40 V | 60 | V | 100 V | | oad tage | |
| 1,500 mA | 400 mA | 400 mA | | 650 mA | 10,000 9,000 8,000 7,000 6,000 5,000 4,000 2,000 1,000 900 800 DC 700 600 400 300 200 100 | rent (DC) | Absolute maximum ratings |
| | | 30 mA | | | LED forward curr | 드 | |
| | 5 | 00 VAC 50/60 Hz for 1 min | n. | | Dielectric strength be | | נ |
| | | -40 to +110°C (with no icing or condensation) | 1 | | Ambient opera temperature | ting e | |
| 0.2 Ω | 14 Ω | 1.5 Ω | 0.3 Ω | 0.6 Ω | Maximum output resistance | ON | rical |
| 1 nA (at 30 VDC) | 1 nA (at 40 VDC) | 1,000 nA (a | at 60 VDC) | 1,000 nA (at 100 VDC) | Maximum OFF leal current | kage O | Electrical |
| | Surface-mounting t | erminals | Terminal | | | | |
| | PCB termina | ls | Terr | | | | |
| | | Surface mounting | | | Mounting n | | |
| | | | | | Applicable st | | 3 |
| | | Compliant Approx. 0.01 g | | | RoHS comp | | |
| 143 | Weight | | | | | | |
| | Page | | | | | | |

Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.

^{*} Refer to pages 218 to 220 for detailed information on models certified for standards.

MOS FET Relay Glossary

Symbol Description Absolute maximum rat-Maximum values that must never be exceeded even instantaneously ings Unless otherwise specified, these values are given at Ta = 25°C. LED forward current le Bated current that can flow continuously in the LED forward direction Renetitive neak LED IFP Rated current that can flow momentarily in the LED forward direction forward current LED forward current ΔIε/°C Reduction rate for current that can flow in the LED forward direction in relation to the ambient temperature LED reverse voltage Vo Bated reverse voltage that can be applied between the cathode and the anode Connection temper-Tj Rated temperature that can be allowed at the LED junction Rated voltage that can be applied between the relay output terminals when switching the load or in the OFF I nad voltage (AC peak/ DC) The peak voltage for AC Continuous load Rated current that can flow between the relay output terminals in the ON state under the specified temperature lο current conditions (AC peak/ DC) The neak current for AC ON current reduc-Reduction rate for current that can flow between the relay output terminals in the ON state in relation to the Alo/°C ambient temperature Pulse ON current lop Bated current that can flow instantaneously between the relay output terminals in the ON state Connection temper-Ti Rated temperature that can be allowed at the light-receiving circuit junction Dielectric strength be-V_{I-O} Voltage that the isolation between the input and output can withstand for a specified time tween I/O Ambient operating tem-Та Ambient temperature range in which the relay may be operated without impairment perature Ambient storage temper-Tsta Ambient temperature range in the relay may be stored while not operating ature Soldering temperature Bated temperature at which the terminals can be soldered without impairment of the relay LED forward voltage ٧/-Voltage drop between the LED anode and cathode at a certain forward current Reverse current Leakage current flowing in the LED reverse direction (between cathode and anode) lκ Capacitance be Ст Electrostatic capacitance between the LED anode and the cathode terminals tween terminals Minimum input current required to change the relay output state. To ensure operation of the relay, a current that is equal to or greater than the maximum specified value must Trigger LED forward IFT Minimum value of input current IF that is required to change an MOS FET with a NO output to the ON state Minimum value of input current IF that is required to change an MOS FET with a NC output to the OFF state IFC Maximum input current required to release the relay output state. To ensure release of the relay, a current that is equal to or less than the minimum specified value must be Release LED forward current IFC Maximum value of input current I⊧ that must flow to change an MOS FET with a NO output to the OFF state IFT Maximum value of input current IF that must flow to change an MOS FET with a NC output to the ON state Maximum resistance with output RON Resistance between the relay output terminals in the specified ON state ON Current leakage Leakage current flowing between the relay output terminals when the specified voltage is applied in the OFF when the relay is Capacitance be-Coff Electrostatic capacitance between the relay output terminals in the OFF state tween terminals Limit current Тим Load current that is maintained when current limiting is activated Capacitance between I/O CLO Electrostatic capacitance between the input and output terminals Insulation resistance be-R_I-o Resistance between the input and output terminals at the specified voltage value tween I/O terminals Time required for the output waveform to change after the specified input LED current is applied Turn-ON time NO relay: Time required for the output waveform to change from 100% to 10% after the input changes from OFF to ON NC relay: Time required for the output waveform to change from 100% to 10% after the input changes from ON to OFF Time required for the output waveform to change after the specified input LED current is interrupted Turn-OFF time NO relay: Time required for the output waveform to change from 0% to 90% after the input changes from ON to OFF toss NC relay: Time required for the output waveform to change from 0% to 90% after the input changes from OFF to ON Indicator of the output transition characteristics for fast signals or pulse signals The ERT is expressed by the following formula, where trin is the input waveform rise time and trout is the output Equivalent rise time ERT waveform rise time after relay transition. The lower the value, the less change there is in the signal, making for good characteristics. ERT = √(trout² - trin²)

| | Item | Symbol | Description | | | | |
|----------------|---------------------------------------|---------------|--|--|--|--|--|
| tions | Recommended operat- ing conditions | | Indicators of the maximum ratings and electrical performances that consider derating to ensure high reliability Each item is an independent condition. Meeting compound conditions simultaneously is not considered. | | | | |
| conditions | Load voltage (AC peak/ DC) | | Recommended load voltage that considers derating The peak voltage for AC | | | | |
| operating | Operating LED forward current | | Recommended LED forward current that considers derating | | | | |
| | Continuous load current (AC peak/ DC) | lo | Recommended load current that considers derating The peak current for AC | | | | |
| Recommended | Ambient operating temperature | Ta | Recommended ambient operating temperature that considers derating | | | | |
| data | ON-state voltage | Von | Voltage drop between the output terminals when the output MOS FET is in the ON state | | | | |
| Engineering da | Output terminal capacitance | Coff/Coff(0V) | Relative ratio based on the capacitance between output terminals when the voltage between the output terminals is 0 V | | | | |
| | Current limiting | | When an overcurrent exceeds a certain value, this function maintains the load current between the minimum and maximum values of the limit current characteristic. Suppressing the current to a fixed value protects the relay and the circuit components connected after the relay. | | | | |
| Other terms | Low CxR | | Indicator of output characteristics in applications that handle high-frequency signals, fast signals, etc. C indicates the capacitance between the output terminals in the OFF state, COFF, and R indicates the resistance between the output terminals, RON, in the ON state. If COFF is large, signal transition even when the relay is OFF (signal leakage or isolation reduction) and the delay in the signal rise time for signal transition when the relay is ON (waveform rounding) are affected. If RON is large, signal transition loss (voltage drop and insertion reduction) is affected. In these applications, a small COFF and RON, i.e., a low C × R characteristic, are important. | | | | |

MOS FET Relay Glossary

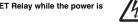
WARNING

Always turn OFF the power supply before wiring a Relav.

Not doing so may cause electrical shock.



Do not touch the current-carrying parts of the pin section of a MOS FET Relay while the power is being supplied.



An electrical shock may occur.



Precautions for Safe Use

1. Do not apply overvoltages or overcurrents to the input or output circuit of the MOS FET Relay.

The MOS FET Relay may fail or ignite.

2. Perform soldering and wiring correctly according to specified soldering conditions.

Using a MOS FET Relay with incomplete soldering may cause overheating when power is applied, possibly resulting in burning.

Precautions for Correct Use

●Derating

You must consider derating to achieve the required system reliability.

To use a MOS FET Relay with high reliability, consider derating the maximum ratings and recommended operating conditions, and allow sufficient leeway in designs based on testing operation in the actual application under the actual operating conditions whenever possible.

(1) Maximum Ratings

The maximum ratings must never be exceeded even instantaneously. This applies individually to each of the ratings. If any of the maximum ratings is exceeded, the internal parts of the MOS FET Relay may deteriorate or the chip may be destroyed. To ensure high reliability in using a MOS FET Relay, sufficiently derate the maximum voltage, current, and temperature ratings when designing the application.

(2) Recommended Operating Conditions The recommended operating conditions are to ensure that the MOS FET Relay turns ON and OFF reliably. To ensure high reliability in using a MOS FET Relay, consider the recommended operating conditions when you design the application.

(3) Fail-safe Design

We recommend that you implement fail-safe measures in the design of the application if the failure of, deterioration of characteristics in, or functional errors in the MOS FET Relay will have a serious affect on the safe operation of the system.

Countermeasures for static electricity

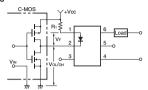
There is a risk of damage to internal elements and impairment of functionality if static electricity is discharged to the pins due to product handling or otherwise.

Reduce the generation of static electricity as much as possible, and implement appropriate measures to prevent charge accumulation near the product.

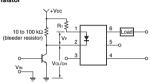
●Typical MOS FET Relay Driving Circuit Examples

The LED input side of the MOS FET is driven by current. If applying a Voltage, add resistance in series with the circuit, so the specified current is applied.

This resistance is referred as "LED current limiting resistance".



Transisto



. To ensure that the MOSFET relay operates correctly, use the following formula to calculate the limiting resistance, and design the circuit accordingly.

$$R_1 = \frac{V_{CC} - V_{OL} - V_{F(ON)}}{I_{CON}}$$

Note: To set the value of IF(ON), check the trigger LED current and recommended operation LED forward current indicated in the catalogue for each model, and set a high value with leeway.

• To ensure that the MOSFET relay resets reliably, calculate the reset voltage using the formula below, and control so that the voltage is lower than this value.

$$V_{F(OFF)}=V_{CC}-I_FR_1-V_{OH}$$

Note: For the IF(OFF) value, set a value that is lower with leeway than the reset LED forward current indicated for each model in the catalogue.

 If the drive transistor has a large leakage current that may cause malfunctioning, add a bleeder resistance.

●Protection from Surge Voltage on the Input Pins

· If any reversed surge voltage is imposed on the input pins, insert a diode in parallel with the input pins as shown in the following circuit diagram and do not impose a reversed voltage of 3 V or higher.

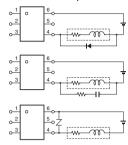
Surge Voltage Protection Circuit Example



●Protection from Spike Voltage on the Output Pins

 If there is an inductive load or other condition that will cause overvoltage that exceeds the absolute maximum rating between the output pins, connect a protective circuit to limit the overvoltage.

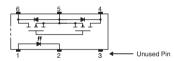
Spike Voltage Protection Circuit Example



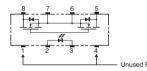
●Unused Pin

The unused pins of each MOSFET relay are used in the internal circuitry. Do not connect to an external circuit.

(Example for 6-pin Relay)



(Example of 8-pin high-capacity type



●Pin Strength for Automatic Mounting

 In order to maintain the characteristics of the MOS FET Relay, the force imposed on any pin of the MOS FET Relay for automatic mounting must not exceed the following limits.



●Load Connection

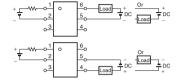
• Do not short-circuit the input and output pins while the MOS FET Relay is operating or it may malfunction.

Example of correct connection

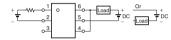
AC/DC connection (A connection)



DC Single Connection (B connection)



DC Parallel Connection (C connection)



●Estimated Life

OMRON MOS FET Relays use mainly two types of LEDs. The service life is estimated separately for each type of LED.

The following tables show the LEDs that are used in each MOS FET Relay. Estimated life data is given on pages **3 and 4**. Ask your OMRON representative for any models that are not listed in the table.

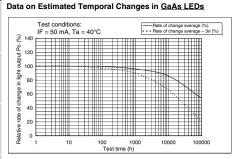
This data is the results of estimating the service life from long-term data on a single lot. Use it only as reference data.

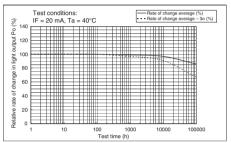
MOS FET Relays That Use GaAs LEDs

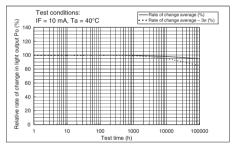
| DIP | so | OP | SSOP | |
|---------------|------------|------------|-------------|--|
| G3VM-61A1/D1 | G3VM-21GR | G3VM-S5 | G3VM-21LR | |
| G3VM-61B1/E1 | G3VM-21GR1 | G3VM-201H1 | G3VM-21LR1 | |
| G3VM-62C1/F1 | G3VM-41GR4 | G3VM-202J1 | G3VM-41LR4 | |
| G3VM-2L/2FL | G3VM-41GR5 | G3VM-351G | G3VM-41LR5 | |
| G3VM-351A/D | G3VM-41GR6 | G3VM-351G1 | G3VM-41LR6 | |
| G3VM-351B/E | G3VM-41GR8 | G3VM-351GL | G3VM-61LR | |
| G3VM-352C/F | G3VM-61G1 | G3VM-351H | G3VM-81LR | |
| G3VM-353A/D | G3VM-61G2 | G3VM-352J | G3VM-101LR | |
| G3VM-353B/E | G3VM-61GR1 | G3VM-353G | USOP | |
| G3VM-354C/F | G3VM-61H1 | G3VM-353H | G3VM-21PR10 | |
| G3VM-355CR/FR | G3VM-62J1 | G3VM-354J | G3VM-21PR11 | |
| G3VM-WL/WFL | G3VM-81G1 | G3VM-355JR | G3VM-41PR10 | |
| G3VM-401A/D | G3VM-81GR | G3VM-401G | G3VM-41PR11 | |
| G3VM-401B/E | G3VM-81GR1 | G3VM-401H | G3VM-41PR12 | |
| G3VM-401BY/EY | G3VM-81HR | G3VM-402J | G3VM-51PR | |
| G3VM-402C/F | G3VM-201G | G3VM-601G | G3VM-61PR | |
| G3VM-601BY/EY | G3VM-201G1 | | G3VM-61PR1 | |

MOS FET Relays That Use GaAlAs LEDs

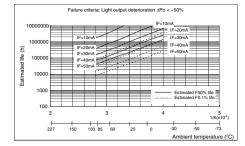
| DIP | SOP | SSOP | SSOP |
|--------------|----------------|------------|-------------|
| G3VM-21AR/DR | G3VM-61BR/ER | G3VM-21HR | G3VM-21LR10 |
| G3VM-21BR/ER | G3VM-61BR1/ER1 | G3VM-41HR | G3VM-41LR10 |
| G3VM-41AR/DR | G3VM-101AR/DR | G3VM-61HR | G3VM-41LR11 |
| G3VM-41BR/ER | G3VM-101BR/ER | G3VM-101HR | |
| G3VM-61AR/DR | | | |

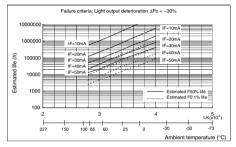






Estimated Life Data for GaAs LEDs





The above estimated life data is reference data that was based on LED long-term appraisal for a single lot.

Operating conditions that exceed the ratings for some models are included, but this in no way implies any warranty for operation that exceeds the ratings.

F50% Life

For the life to a 50% cumulative failure rate, this is the time that is required for the AVG average line in the data on estimated temporal changes to reach the failure criteria.

F0.1% Life:

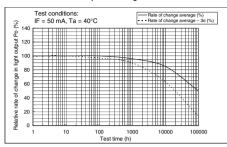
For the life to a 0.1% cumulative failure rate, this is the time that is required for the AVG-3 α line in the data on estimated temporal changes to reach the failure criteria.

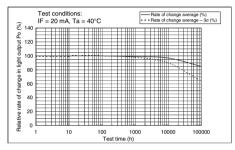
Whether to use estimated F50% life or F0.1% life should be determined based on the reliability required in the actual equipment, however, estimated F0.1% life is normally recommended.

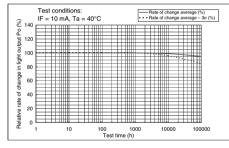
"Optical output deterioration Δ po" is the amount of LED optical output deterioration compared to the initial LED output. When "Optical output deterioration failure criterion Δ po < - 50%", a failure is detected when optical output has deteriorated 50% from the initial output.

Whether to use optical output deterioration $\Delta po < -50\%$ or $\Delta po < -30\%$ should be determined based on the amount of leeway to be provided in the LED forward current (IF) setting with respect to the trigger LED forward current (IFT). However, the $\Delta po < -30\%$ graph is normally recommended.

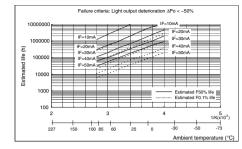
Data on Estimated Temporal Changes in GaAlAs LEDs

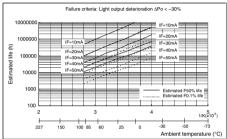






Estimated Life Data for GaAIAs LEDs





The above estimated life data is reference data that was based on LED long-term appraisal for a single lot.

Operating conditions that exceed the ratings for some models are included, but this in no way implies any warranty for operation that exceeds the ratings.

F50% Life:

For the life to a 50% cumulative failure rate, this is the time that is required for the AVG average line in the data on estimated temporal changes to reach the failure criteria.

F0.1% Life:

For the life to a 0.1% cumulative failure rate, this is the time that is required for the AVG-3 α line in the data on estimated temporal changes to reach the failure criteria.

Whether to use estimated F50% life or F0.1% life should be determined based on the reliability required in the actual equipment, however, estimated F0.1% life is normally recommended.

"Optical output deterioration Δ po" is the amount of LED optical output deterioration compared to the initial LED output. When "Optical output deterioration failure criterion Δ po < - 50%", a failure is detected when optical output has deteriorated 50% from the initial output.

Whether to use optical output deterioration $\Delta po <$ - 50% or $\Delta po <$ - 30% should be determined based on the amount of leeway to be provided in the LED forward current (IFT). However, the $\Delta po <$ - 30% graph is normally recommended.

●Cleaning Flux from the MOS FET Relavs

- (1) Clean flux from the MOS FET Relay so that there will be no residue of reactive ions, such as sodium or chlorine. Some organic solvents will react with water to produce hydrogen chloride or other corrosive gases, which may cause deterioration of the MOS FET Relays.
- (2) When washing off the flux with water, make sure that there will be no residue of reactive ions, particularly sodium or chlorine
- (3) During water washing, do not scrub the marks on the surface of the MOS FET Relay with a brush or your hand while there is cleaning liquid on the MOS FET Relay. The marks may come off.
- (4) Clean the flux from the MOS FET Relays with the chemical action of the solvent for submersed cleaning, shower cleaning, or steam cleaning. To minimize the effect on the MOS FET Relays, do not place the MOS FET Relay in the solvent or steam for more than 1 minute at a temperature of 50°C.
- (5) If you use ultrasonic cleaning, keep the time short. If the cleaning time is too long, the sealing characteristics of the molded resin and frame materials may deteriorate. The recommended basic conditions are given below. Recommended Conditions for Ultrasonic Cleaning: Frequency: 27 to 29 kHz

Ultrasonic wave output: 300 W max. (0.25 W/cm² max.) Cleaning time: 30 s max.

Also, suspend the MOS FET Relays in the cleaning solution so that the MOS FET Relay and PCB do not come into direct contact with the ultrasonic transducer.

Solder Mounting

Perform solder mounting under the following recommended conditions to prevent the temperature of the MOS FET Relays from rising.

<Flow Soldering>

PCB Terminals

(Set Temperature of Flow Bath)

| • | , | | |
|--------------------|-------------|-----------|-----------|
| Solder type | Preheating | Soldering | Count |
| (Lead solder) | 150°C | 260°C | Once only |
| SnPb | 60 to 120 s | 10 s max. | |
| (Lead-free solder) | 150°C | 260°C | Once only |
| SnAgCu | 60 to 120 s | 10 s max. | |

Note: We recommend that you verify the suitability of solder mounting under actual conditions.

Surface-mount Terminals

If you are considering mounting a surface mount pin type by flow soldering, please consult us.

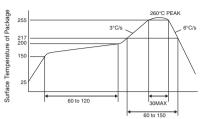
<Reflow Soldering>

Surface-mount Terminals

(Surface Temperature of Package)

| Solder type | Preheating | Solo | Count | |
|-----------------------|-----------------------------|--------------------|---------------------|-------------|
| (Lead solder) SnPb | 140 to 160°C 60 to 120 s | 210°C 30 s max. | Peak: 240°C max. | Up to twice |

(Lead-free solder) SnAqCu recommended profile



Reflow repetitions : Up to twice Time (s)

Note: 1. We recommend that you verify the suitability of solder mounting under actual conditions.

2. When SSOP, USOP, VSON, or S-VSON products are ordered with (TR), tape package product is delivered in moisture-proof packaging. If ordered without (TR), tape-cut product is delivered in non moisture-proof packaging. Mount a tape cut product by manual soldering. Tape cut products absorb moisture because a non moisture-proof package is used. Risk of package cracking or other damage due to thermal stress if reflow soldering is performed.

Manual Soldering (Once Only)

Perform manual soldering at 350°C for 3 s or less or at 260°C for 10 s or less.

Note: Please consult us for manual soldering conditions for S-VSON products.

Storage Conditions

- Store the MOS FET Relay where they will not be subjected to water leaks or direct sunlight.
- (2) When transporting or storing the MOS FET Relays, observe all precautions on the packaging boxes.
- (3) Keep the storage location at normal temperature, normal humidity, and normal pressure. Guidelines for the temperature and humidity are 5 to 35°C and a relative humidity of 45% to 75%.
- (4) Do not store the MOS FET Relay in locations that are subject to corrosive gases, such as hydrogen sulfide gas, or to salt spray, and do not store them where there is visually apparent dust or dirt.
- (5) Store the MOS FET Relay in a location that has a relatively stable temperature. Radical changes in temperature during storage will cause condensation, which may oxidize or corrode the leads and interfere with solder wetting.
- (6) If you remove MOS FET Relays from the packages and then store them again, use storage containers that have measures to prevent static electricity.
- (7) Do not under any circumstances apply any force to the MOS FET Relays that would deform or alter them in any way.
- (8) This product is warranted for one year from the date of purchase or the date of delivery to the specified location. If the MOS FET Relays are stored for more than about one year under normal conditions, we recommend that you confirm solderability before you use the MOS FET Relays.

●Usage Conditions

<Temperature>

The electrical characteristics of the MOS FET Relays are limited by the application temperature.

If you use them at temperatures outside of the operating temperature range, the electrical characteristics of the MOS FET Belays will not be achieved and the MOS FET Belays may deteriorate. For that reason, you must determine the temperature characteristics in advance and apply derating* to the design of the application. (*Derating reduces stress.) Consider derating in the operating temperature conditions and apply the recommended operating temperature as a guideline. <Humidity>

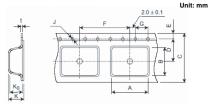
If the MOS FET Relays are used for a long period of time at high humidity, humidity will penetrate the Relays and the internal chips may deteriorate or fail. In systems with high signal source impedance, leaks in the board or leaks between the leads of the MOS FET Relays can cause malfunctions. If these are issues, consider applying humidity-resistant processing to the surfaces of the MOS FET Relays. On the other hand, at low humidity. damage from the discharge of static electricity becomes a problem. Low humidity may cause damage due to electrostatic discharge. Unless moisture proofing is implemented, use within a relative humidity range of 40 to 60%.

Considerations when handling SSOP, USOP, VSON, and S-VSON products

<Moisture proof package, MSL3> (Other packages are MSL1) Surface mount products may have a crack when thermal stress is applied during surface mount assembly after they absorb atmospheric moisture. Therefore, please observe the following

- (1) This moisture proof bag may be stored unopened within 12 months at the following conditions. Temperature: 5°C to 30°C Humidity: 90% (Max.)
- (2) After opening the moisture proof bag, the devices should be assembled within 168 hours in an environment of 5°C to 30°C / 70%RH or below.
- (3) If upon opening, the moisture indicator card shows humidity 30% or above (Color of indication changes to pink) or the expiration date has passed, the devices should be baked in taping with reel. After baking, use the baked devices within 72 hours, but perform baking only once. Baking conditions: 60±5°C. For 64 to 72 hours. Expiration date: 12 months from sealing date, which is imprinted on the label affixed.
- (4) Repeated baking can cause the peeling strength of the taping to change, then leads to trouble in mounting. Furthermore, prevent the devices from being destructed against static electricity for baking of it.
- (5) If the packing material of laminate would be broken the hermeticity would deteriorate. Therefore, do not throw or drop the packed devices.
- (6) Tape-cut SSOPs, USOPs, VSONs, or S-VSON are packaged without humidity resistance. Use manual soldering to mount them. (MSL not supported)

●Tape Packaging <Tape Form and Dimensions>



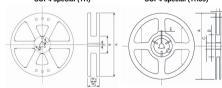
Unit: mm

| Туре | of pa | ckage | DIP4 | DIP6 | DIP8 | Special SOP4 | SOP4 | |
|--------------------------------|-------|------------|----------|----------|----------|-----------------|---------|--|
| | Α | | | 10.4±0.1 | | 4.0±0.1 | 4.3±0.1 | |
| e. | В | | 5.1±0.1 | 7.6±0.1 | 10.1±0.1 | 7.6±0.1 | 7.5±0.1 | |
| igir | С | | | 16±0.3 | | 12± | :0.3 | |
| 8 | D | | | 7.5±0.1 | 5.5±0.1 | | | |
| Dimension symbol (See figure.) | E | Dimensions | | | | | | |
| g | F | ensi | | 12.0±0.1 | 8.0±0.1 | | | |
| s | G | Ji m | 4.0±0.1 | | | | | |
| sior | J | | | | | | | |
| nen | k | | 4.55±0.2 | | | 2.9±0.2 | 2.6±0.2 | |
| ₫ | ko | | | 4.1±0.1 | 2.6±0.1 | 2.4±0.1 | | |
| | t | | | 0.4±0.05 | | 0.3±0.05 | | |

| Туре | of pa | ckage | SOP6 | SOP8 | SSOP4 | USOP4 | VSON4 | S-VSON4 | | |
|----------------------|-------|------------|-----------|-------------------------|----------|----------|----------|----------|--|--|
| | Α | | 7.5±0.1 | | 2.35±0.2 | 2.6±0.1 | 1.6±0.1 | | | |
| (; | В | | 6.7±0.1 | 10.5±0.1 | 4.5±0.1 | 3.55±0.1 | 3.0±0.1 | 2.25±0.1 | | |
| symbol (See figure.) | С | | 16: | 0.3 | 12: | 0.3 | 8.0: | ±0.3 | | |
| 96 | D | | 7.5±0.1 | | 5.5±0.1 | | 3.5±0.1 | | | |
| S) IC | E | Dimensions | 1.75±0.1 | | | | | | | |
| apc | F | ensi | 12.0 | ±0.1 | | 4.0: | ±0.1 | | | |
| syl | G | Oim | | | 4.0±0.1 | | | | | |
| sior | J | | 1.5+0.1-0 | | | | | | | |
| Dimension | k | | 2.5±0.2 | 2.4±0.2 | 2.4±0.1 | 2.25±0.1 | - | - | | |
| ä | ko | | 2.3±0.1 | 2.3±0.1 2.2±0.1 2.1±0.1 | | 1.95±0.1 | 1.5±0.1 | 1.85±0.1 | | |
| | t | | | 0.3±0.05 | | 0.3±0.1 | 0.2±0.05 | | | |

<Reel Form and Dimensions> DIP/SOP SOP4 special (TR)

SSOP/USOP/VSON/S-VSON SOP4 special (TR05)



DIP (TR05)

lnit: mm

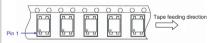
| | | | | | | | | | 0 | it: mm | |
|------------------|-----------|------------|-------------|-------------|---------|------|-----------------|-------|------|--------|--|
| | ype o | | DIP4 | | DIP6 | DIP8 | Special SOP4 | SOP4 | SOP6 | SOP8 | |
| Тар | Tape name | | (TR05) | | | | (TR) | | | | |
| re.) | Α | | 254±2 dia. | 38 | 30±2 di | a. | | 330±2 | dia. | | |
| e figure.) | В | | 100±1 dia. | | | ; | 80±1 dia | | | | |
| ees) | С | suc | 13±0.2 dia. | 13±0.5 dia. | | | | | | | |
| oqu. | E | Dimensions | 2.0±0.5 | | 2.0±0.5 | | | | | | |
| on sy | U | Dim | 4.0 | | | | 4.0±0.5 | | | | |
| Dimension symbol | W1 | 17.4±1. | | 1 | 7.5±0. | 5 | 13.5±0.5 | | 17.5 | ±0.5 | |
| Dim | W2 | | 21.4±1.0 | 2 | 1.5±1. | 0 | 17.5 | ±1.0 | 21.5 | ±1.0 | |

| Type of package | | | Special SOP4 | SSOP4 | USOP4 | VSON4 | S-VSON4 | | |
|--------------------------------|-----------|------------|-----------------|-------------------|----------|-------------|---------|--|--|
| Тар | Tape name | | | | (TR05) | | | | |
| re.) | Α | | 180±2.0 dia. | 180+0 | /-4 dia. | 180± | 3 dia. | | |
| figu | В | | 60±1.0 dia. | 60 | dia. | 60±1 dia. | | | |
| es) I | С | suc | 13±0.5 dia. | 13 | dia. | 13±0.5 dia. | | | |
| oqu | E | Dimensions | | 2.0±0.5 | | | | | |
| on sy | U | Dim | 4.0±0.5 dia. | - | - | 4.0±0.5 | | | |
| Dimension symbol (See figure.) | W1 | | 13.5±0.5 dia. | 13± | 13±0.3 | | ±0.3 | | |
| Din | W2 | | 17.5±1.0 dia. | 15.4±1.0 11.4±1.0 | | ±1.0 | | | |

<Taping Direction>

The orientations of the MOS FET Relays in the depressions in the carrier tapes are shown below.

(1) SOP4 Pins



(2) SOP6, SOP8, DIP4, DIP6, or DIP8 Pins



(3) SSOP4, USOP4, VSON4, S-VSON4 pin types



<Number of Relays Per Reel>

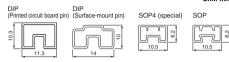
| | Type of pa | ckage | DIP4 | DIP6 | DIP8 | Special SOP4 | SOP4 | SOP6 | SOP8 |
|--|---------------------|-------|------|-------|------|-----------------|------|-------|------|
| | Number of Relays | TR | | 1,500 | | 3,000 | | 2,500 | |
| | | TR05 | 500 | - | - | 500 | | - | |

| Type of pa | ckage | SSOP4 | USOP4 | VSON4 | S-VSON4 | | | | |
|------------|-------|-------|-------|-------|---------|--|--|--|--|
| Number of | TR | | - | - | | | | | |
| Relays | TR05 | 500 | | | | | | | |

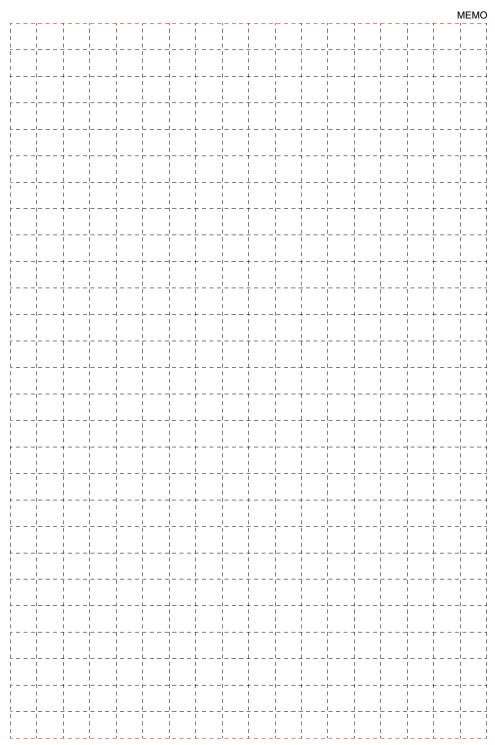
Stick packaging

<Stick shape and dimensions>

Unit: mm



| Type of package | DIP4 | DIP6 | DIP8 | DIP4 | DIP6 | DIP8 | Special | SODA | SODE | SOP8 | |
|---------------------|--------------|----------|------|------|--------------|------|---------|------|------|------|--|
| Pin type | | ited cir | | Surf | ace-m pin | ount | SOP4 | 3014 | 3010 | 5510 | |
| Number of Relays | 100 | 50 | 50 | 100 | 50 | 50 | 125 | 100 | 75 | 50 | |
| Height (mm) | | 10.3 | | | 10 | | | 6.2 | | | |
| Width (mm) | 11.3 14 10.5 | | | | | | | | | | |
| Length (mm) | | 525 | | | 525 | | | 555 | | | |



63VM-_A_\/_D_\/_B_\/_E

MOS FET Relays DIP, General-purpose Type

General-purpose MOS FET Relays in DIP packages for a wide range of applications

• Package: DIP 4-pin or DIP 6-pin

• Contact form: 1a (SPST-NO) or 1b (SPST-NC)

• Load voltage: 60 V, 350 V, or 400 V



Note: The actual product is marked differently from the image shown here.

RoHS Compliant

■Application Examples

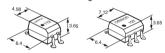
- Communication equipment • Test & Measurement equipment
- · Security equipment · Industrial equipment
- Power circuit

■Package

(Unit: mm, Average)

DIP 4-pin DIP 6-pin **PCB** Terminals

Surface-mounting Terminals



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-

1. Load Voltage

6:60 V

35:350 V

40:400 V

2. Contact form 1:1a (SPST-NO)

3:1b (SPST-NC)

3. Package

A: DIP 4-pin with PCB terminals

B: DIP 6-pin with PCB terminals

D: DIP 4-pin with surface-mounting terminals

E: DIP 6-pin with surface-mounting terminals

4. Other informations

When specifications overlap, serial code is added recorded order.

■Ordering Information

| | | | | | Stick packaging | | Tape packaging | | |
|----------|-----------------|-----------------------------|-------------------------|---------------|-------------------------------|---------------------|-------------------------------|---------------------|--|
| Package | Contact form | Load voltage (peak value) * | Continuous load current | | Model | Minimum | Model | Minimum | |
| . ac.age | | (peak value) * | (peak value) * | PCB Terminals | Surface-mounting Terminals | package quantity | Surface-mounting Terminals | package quantity | |
| | 1a | 60 V | 500 mA | G3VM-61A1 | G3VM-61D1 | | G3VM-61D1(TR) | | |
| | (SPST-NO) | | 120 mA | G3VM-351A | G3VM-351D | | G3VM-351D(TR) | | |
| DIP4 | 1b (SPST-NC) | 350 V | 150 mA | G3VM-353A | G3VM-353D | 100 pcs. | G3VM-353D(TR) | 1,500 pcs. | |
| | 1a (SPST-NO) | 400 V | 120 mA | G3VM-401A | G3VM-401D | | G3VM-401D(TR) | | |

| | | | | Continuous | load current | | Stick packaging | | Tape packag | ing | | | |
|------|---------------|-----------------|----------------|--------------------|-----------------|---------------|-------------------------------|---------------------|-------------------------------|---------------------|--|---------------|--|
| Paci | cage | Contact form | Load voltage | (peak value) * | | | Model | Minimum | Model | Minimum | | | |
| | .ugc | 001111101111 | (peak value) * | Connection A, B | Connection C | PCB Terminals | Surface-mounting Terminals | package quantity | Surface-mounting Terminals | package quantity | | | |
| | 1a | | 60 V | 500 mA | 1000 mA | G3VM-61B1 | G3VM-61E1 | | G3VM-61E1(TR) | | | | |
| | | (SPST-NO) | (SPST-NO) | (SPST-NO) | (SPST-NO) | | 120 mA | 240 mA | G3VM-351B | G3VM-351E | | G3VM-351E(TR) | |
| DI | IP6 (SPST-NC) | | 350 V | 150 mA | 300 mA | G3VM-353B | G3VM-353E | 50 pcs. | G3VM-353E(TR) | 1,500 pcs. | | | |
| | | 1a (SPST-NO) | 400 V | 120 mA | 240 mA | G3VM-401B | G3VM-401E | | G3VM-401E(TR) | | | | |

* The AC peak and DC value are given for the load voltage and continuous load current.

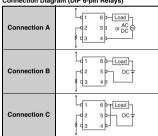
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | | Symbol | G3VM-61A1 G3VM-61D1 | G3VM-61B1 G3VM-61E1 | G3VM-351A G3VM-351D | G3VM-351B G3VM-351E | G3VM-353A G3VM-353D | G3VM-353B G3VM-353E | G3VM-401A G3VM-401D | G3VM-401B G3VM-401E | Unit | Measurement conditions |
|--------|--|---------------|--------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------|-----------------------------------|
| | LED forward curr | ent | lF | | | | 5 | 50 | | | | mA | |
| + | Repetitive peak L current | ED forward | IFP | | | | | 1 | | | | А | 100 μs pulses, 100 pps |
| Input | LED forward curre rate | ent reduction | ΔIF/°C | | -0.5 | | | | | | | mA/°C | Ta≥25°C |
| | LED reverse volta | age | VR | | 5 | | | | | | V | | |
| | Connection temp | erature | TJ | | | 125 | | | | | | °C | |
| | Load voltage (AC | peak/DC) | Voff | 6 | 0 | 350 | | 400 | | V | | | |
| | Continuous load current (AC peak/DC) | Connection A | | 50 | 00 | 12 | 20 | 15 | 50 | 12 | 20 | | Connection A: |
| | | Connection B | lo | 1 | 500 | | 120 | | 150 | | 120 | mA | AC peak/DC Connection B and C: |
| Ħ | | Connection C | | _ | 1000 | _ | 240 | _ | 300 | _ | 240 | | DC |
| Output | ON current | Connection A | | - | 5 | -1.2 | | -1.5 | | -1.2 | | | |
| 0 | reduction rate | Connection B | ∆lo/°C | | -5 | | -1.2 | | -1.5 | | -1.2 | mA/°C | Ta ≥ 25°C |
| | reduction rate | Connection C | | _ | -10 | _ | -2.4 | _ | -3 | _ | -2.4 | | |
| | Pulse ON current | | lop | 1. | .5 | 0. | 36 | 0. | 45 | 0.3 | 36 | Α | t=100 ms, Duty=1/10 |
| | Connection temp | erature | TJ | | | • | 1: | 25 | | • | | °C | |
| Di | electric strength be | tween I/O * | VI-O | | | | 2, | 500 | | | | Vrms | AC for 1 min |
| An | nbient operating te | mperature | Ta | -40 to +85 | | | | | | | °C | With no icing or | |
| An | Ambient storage temperature | | | -55 to +125 | | | | | | | °C | condensation | |
| Sc | Idering temperatur | e | - | | | | 2 | 60 | | | | °C | 10 s |

^{*} The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

Connection Diagram (DIP 6-pin Relays)



■Electrical Characteristics (Ta = 25°C)

| | Item | Symbol | | | G3VM-61A1 G3VM-61D1 | G3VM-61B1 G3VM-61E1 | G3VM-351A G3VM-351D | G3VM-351B G3VM-351E | G3VM-353A G3VM-353D | G3VM-353B G3VM-353E | G3VM-401A G3VM-401D | G3VM-401B G3VM-401E | Unit | Measurement conditions | | | | | |
|--------|---|--------------------|---------|---------------------------|------------------------|------------------------|------------------------|------------------------|----------------------------|------------------------|------------------------|------------------------|------|---|---|---|----|--|---|
| | LED forward voltage | VF | T | nimum ypical ximum | | | | 1. | .0 15 .3 | | | | ٧ | I=10 mA | | | | | |
| | Reverse current | IR | Ma | ıximum | | | | 1 | 0 | | | | μА | VR=5 V | | | | | |
| | Capacitance between terminals | Ст | T | ypical | | | | 3 | 10 | | | | pF | V=0, f=1 MHz | | | | | |
| Input | Trigger LED forward current | IFT (IFC) *2 | | ypical | 1. | .6 | | ; | 3 | 1 | | | mA | G3VM-353A/353D/ 353B/353E: IoFF=10 μA Others: Io=Continuous load current ratings | | | | | |
| | Release LED forward current | IFC (IFT) *2 | Mil | nimum | | | | 0 | .1 | | | | mA | G3VM-353A/353D/ 353B/353E: Io=150 mA Others: IoFF=100 μA | | | | | |
| | | | Typical | Connection A | 1 | | | 35 25) | 1 | 5 | 18 | 17 | | G3VM-61A1/61D1/61B1/ 61E1/351A/351D/351B/ 351E/401A/401D/401B/ | | | | | |
| | | | ,, | Connection B Connection C | - | 0.5 0.25 | - | 28 14 | - | 8 | - | 11 6 | ļ | 401E: IF=5 mA, | | | | | |
| | Maximum resistance | Bon | | Connection A | 2 | 2 | | i0 35) | 2 | 5 | 3 | 15 | Ω | lo=Continuous load current ratings | | | | | |
| Output | with output ON | | HUN | HON | HON | HON | TION | Maximum | Connection B Connection C | - | 1 | = | 20 | - | 7 | = | 10 | | Values in parentheses are for t < 1 s. G3VM-353A/353D/ 353B/353E: Io=Continuous load current ratings |
| | Current leakage when the relay is open | ILEAK | Ma | ıximum | | | | | 1 | | | | μА | G3VM-353A/353D/ 353B/353E: IF=5mA, Voff=Load voltage ratings Others: Voff=Load voltage ratings | | | | | |
| | Capacitance between terminals | Coff | T | ypical | 13 | 30 | 3 | 00 | 8 | 5 | 4 | 10 | pF | V=0, f=1 MHz | | | | | |
| be | apacitance etween I/O rminals | Cı-o | T | ypical | | | • | 0 | .8 | | | | pF | f=1 MHz, Vs=0 V | | | | | |
| | sulation sistance | | Mi | nimum | | | | 10 | 100 | | | | | Vi-o=500 VDC, | | | | | |
| be | sistance etween I/O rminals | Ri-o | | ypical | | | | | 08 | | | | ΜΩ | RoH≤60% | | | | | |
| Tu | ırn-ON time | ton | | ypical ximum | | .8 | 0 | .3 | 0 | .1 | - | 0.3 | | I- 5A D. 000 O | | | | | |
| | | | | ypical | | | 0.1 | | | 1 | _ | 0.1 | ms | IF=5 mA, RL=200 Ω, VDD=10 V *1 | | | | | |
| Tu | ırn-OFF time | toff | | ıximum | 0. | .5 | | 1 | | 3 | | 1 | t | | | | | | |

*1. Turn-ON and Turn-OFF Times

*2. These values are for Relays with NC contacts



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

| Item | Symbol | | G3VM-61A1 G3VM-61D1 | | | | | | | | Unit | | |
|---|--------|---------|------------------------|---------|----|-----|----|-----|-----|-----|------|----|--|
| Load voltage (AC peak/DC) | VDD | Maximum | 4 | 8 | | 28 | 30 | | 32 | 20 | ٧ | | |
| Operating LED | | Minimum | | | | į | 5 | | | | | | |
| forward current | lF | lF | lF | Typical | | 7.5 | | 10 | - | = | 7. | .5 | |
| lorward current | | Maximum | 25 | | | | | | mA | | | | |
| Continuous load current (AC peak/DC) | lo | Maximum | 50 | 00 | 10 | 00 | 15 | 50 | 100 | 120 | | | |
| Ambient operating | Ta | Minimum | -20 | | | | | | | °C | | | |
| temperature | 1 a | Maximum | um 65 | | | | | - 0 | | | | | |

s with cation

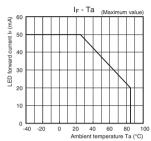
■Spacing and Insulation

| Item | Minimum | Unit |
|------------------------------|---------|------|
| Creepage distances | 7.0 | |
| Clearance distances | 7.0 | mm |
| Internal isolation thickness | 0.4 | |

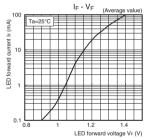
G3VM-□A□/□D□/□BI

■Engineering Data

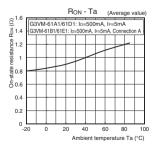
LED forward current vs. Ambient temperature



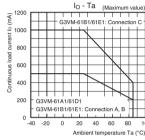
LED forward current vs. LED forward voltage



On-state resistance vs. Ambient temperature G3VM-61A1/61D1/61B1/61E1

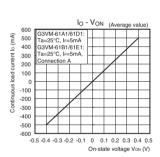


Continuous load current vs. Ambient temperature G3VM-61A1/61D1/61B1/61E1

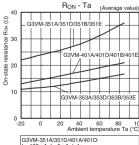


Continuous load current vs. On-state voltage

G3VM-61A1/61D1/61B1/61E1

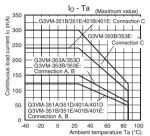


G3VM-351A/351D/351B/351E G3VM-353A/353D/353B/353E G3VM-401A/401D/401B/401E

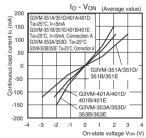


G3VM-351A/351D/401A/401D: lo=120mA, I=5mA, t<1s G3VM-351B/351E/401B/401E: lo=120mA, Ir=5mA, t<1s, Connection A G3VM-353A/353D: lo=150mA, t<1s G3VM-353B/353E: lo=150mA, t<1s, Connection A

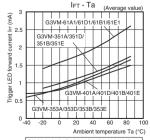
G3VM-351A/351D/351B/351E G3VM-353A/353D/353B/353E G3VM-401A/401D/401B/401E



G3VM-351A/351D/351B/351E G3VM-353A/353D/353B/353E G3VM-401A/401D/401B/401E



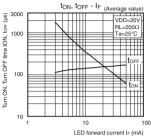
Trigger LED forward current vs. Ambient temperature



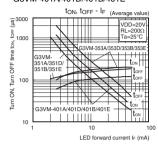
G3VM-61A1/61D1/351A/351D/401A/401D Io=Continuous Load Current Ratings, t<1s G3VM-61B1/61E1/351B/351E/401B/401E G3VM-91B1/91E1/391B351E/401B21 ID=Continuous Load Current Ratings, t<1s, Connection A G3VM-353A/353D: IoFF=10µA, G3VM-353B/353E: IoFF=10µA, Connection A

■Engineering Data

Turn ON, Turn OFF time vs. LED forward current G3VM-61A1/61D1/61B1/61E1



G3VM-351A/351D/351B/351E G3VM-353A/353D/353B/353E G3VM-401A/401D/401B/401E

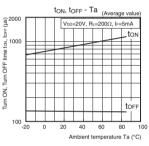


Current leakage vs.
 Ambient temperature

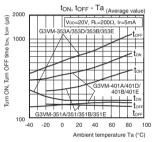
● Turn ON, Turn OFF time vs.

Ambient temperature

G3VM-61A1/61D1/61B1/61E1





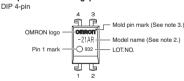


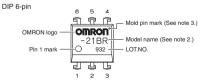
| Number | N

■Appearance / Terminal Arrangement / Internal Connections

Appearance

DIP (Dual Inline Package)





Terminal Arrangement/Internal Connections (Top View)





Note: 1. The actual product is marked differently from the image shown here.

Note: 2. "G3VM" does not appear in the model number on the Relay.

Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

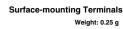
■Dimensions (Unit: mm)

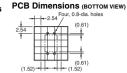














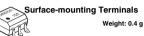


2 5/1-0 25 Note: The actual product is marked differently from the image shown here.

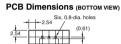
DIP6



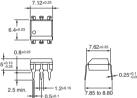


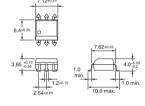


10.0 may









Actual Mounting Pad Dimensions (Recommended Value, Top View)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

- 2.54±0.25

UL recognized

| | Мо | del | | Approved Standards | Contact form | File No. |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------|--------------|----------|
| G3VM-61A1 G3VM-351A G3VM-401A | G3VM-61D1 G3VM-351D G3VM-401D | G3VM-61B1 G3VM-351B G3VM-401B | G3VM-61E1 G3VM-351E G3VM-401E | UL (recognized) | 1a (SPST-NO) | E80555 |
| G3VM-353A | G3VM-353D | G3VM-353B | G3VM-353E | | 1b (SPST-NC) | |

Models Certified by BSI for EN/IEC Standards

| Model | Approved Standards | Contact form | File No. |
|-----------|--------------------|--------------|----------|
| G3VM-351A | EN 60950/EN 60065 | 1a (SPST-NO) | 8816 |
| G3VM-351D | (BSI certified) | | 8817 |

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

$G3VM-6\square G\square/61VY\square$

MOS FET Relays SOP 4-pin, General-purpose Type

General-purpose MOS FET Relays in SOP 4-pin packages for a wide range of applications

- Contact form: 1a (SPST-NO) or 1b (SPST-NC)
- Load voltage: 60 V

RoHS Compliant

0351 NI

Note: The actual product is marked differently from the image shown here.

■Application Examples

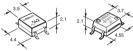
- · Semiconductor test equipment
- Test & Measurement equipment
 Communication equipment
- Test & Measurement equipment
- Security equipment
- Industrial equipment
 Power circuit
 - pment

Amusement equipment

■Package (Unit:mm, Average)

SOP 4-pin

Special SOP 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

1. Load voltage

6: 60 V

2. Contact form

1: 1a (SPST-NO) 3: 1b (SPST-NC)

4. Additional functions

None: Dielectric strength between I/O 1500 V Y: Dielectric strength between I/O 3750 V 3. Package

G: SOP 4-pin

V: Special SOP 4-pin

5. Other informations

When specifications overlap, serial code is added in the recorded order.

■Ordering Information

| | | | Load voltage | Continuous | Stick pa | ackaging | Tape packaging | | |
|----------------------|--------------|-------------------------------|----------------|--------------------------------|------------|-----------------------------|------------------|-----------------------------|--|
| Package | Contact form | Terminals | (peak value) * | load current (peak value) * | Model | Minimum package quantity | Model | Minimum package quantity | |
| | | | | 400 mA | G3VM-61G1 | | G3VM-61G1(TR) | | |
| SOP4 | | | | | G3VM-61G2 | 100 pcs. | G3VM-61G2(TR) | 2500 pcs. | |
| | | | | | G3VM-61G3 | | G3VM-61G3(TR) | | |
| | 1a (SPST-NO) | | | 100 mA | G3VM-61VY1 | | G3VM-61VY1(TR) | 3000 pcs. | |
| | 1a (SPS1-NO) | Surface-mounting Terminals | 60 V | 500 mA | G3VM-61VY2 | | G3VM-61VY2(TR05) | 500 pcs. | |
| Special SOP 4-pin | | reminais | | 300 IIIA | G3VW-01V12 | 125 pcs. | G3VM-61VY2(TR) | 3000 pcs. | |
| 301 4-piii | | | | 700 mA | G3VM-61VY3 | | G3VM-61VY3(TR05) | 500 pcs. | |
| | | | | 700 mA | G3VW-61VY3 | | G3VM-61VY3(TR) | 3000 pcs. | |
| SOP4 | 1b (SPST-NC) | | | 500 mA | G3VM-63G | 100 pcs. | G3VM-63G(TR05) | 500 pcs. | |

* The AC peak and DC value are given for the load voltage and continuous load current.

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" or "(TR05)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | Symbol | G3VM-61G1G3VM-61 | G2G3VM-61G | 3G3VM-61VY1 | G3VM-61VY2 | G3VM-61VY3 | G3VM-63G | Unit | Measurement conditions |
|--------|---|--------|------------------|----------------|-------------|------------|------------|-------------|--------------|------------------------|
| | LED forward current | lF | 50 | | 3 | 0 | | 50 | mA | |
| Input | LED forward current reduction rate | ΔIF/°C | -0.5 | -0.5 -0 | | | | -0.5 | mA/°C | Ta ≥ 25°C |
| ü | LED reverse voltage | VR | | 5 | | | 6 | 5 | V | |
| | Connection temperature | TJ | 125 | | | | | | | |
| | Load voltage (AC peak/DC) | Voff | 60 | | | | | | V | |
| = | Continuous load current (AC peak/DC) | lo | 400 | | 100 | 500 | 700 | 500 | mA | |
| Output | ON current reduction rate | Δlo/°C | -4.0 | | -1.0 | -5.0 | -7.0 | -5.0 | mA/°C | Ta ≥ 25°C |
| 0 | Pulse ON current | lop | 1200 | | 300 | 1500 | 2100 | 1500 | mA | t=100 ms, Duty=1/10 |
| | Connection temperature | TJ | | | 125 | | • | | °C | |
| D | Dielectric strength between I/O * | | 1500 | 1500 3750 1500 | | 3750 | | 1500 | Vrms | AC for 1 min |
| Α | mbient operating temperature | Ta | -4 | 10 to +85 | | -40 to | +110 | -40 to +105 | °C | With no icing or |
| Α | mbient storage temperature | Tstg | -55 to +125 | | | | | ç | condensation | |
| S | oldering temperature | - | 260 | | | ô | 10 s | | | |

^{*} The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

$G3VM-6\square G\square/61VY$

■Electrical Characteristics (Ta = 25°C)

| | Item | Symbol | | G3VM-61G1 | G3VM-61G2 | G3VM-61G3 | G3VM-61VY1 | G3VM-61VY2 | G3VM-61VY3 | G3VM-63G | Unit | Measurement conditions | | |
|--------|--|--------------|--------------------|-----------|-----------|-----------|-------------|------------|------------|----------|------|--|----|---|
| | LED forward | | Minimum | 1 | .0 | | | .1 | | 1.0 | | | | |
| | voltage | VF | Typical | 1. | 15 | | 1. | 27 | | 1.15 | ٧ | IF=10 mA | | |
| | Ů | | Maximum | 1 | .3 | | | .4 | | 1.3 | | | | |
| | Reverse current | IR | Maximum | | | | 10 | | | | μΑ | VR=5 V | | |
| | Capacitance between terminals | Ст | Typical | | 30 | | 50 | | 30 | | pF | V=0, f=1 MHz | | |
| Input | Trigger LED forward current | IFT (IFC) | Typical | 1.6 | 0.4 | - | 0.2 | | 1 | 0.6 | mA | G3VM-61G1/61G2/61G3: lo=400 mA G3VM-61VY1: lo=100 mA | | |
| | *2 | | Maximum | 3 | 1 | 0.2 | 1 | | 3 | | | G3VM-61VY2: Io=500 mA G3VM-61VY3: Io=700 mA G3VM-63G : IoFF=10 μA | | |
| | Release LED | IFC | Minimum | 0 | .1 | - | 0.01 | | 0.1 | | 4 | G3VM-61G1/61G2/61G3/61VY1/ | | |
| | forward current | (IFT) *2 | Typical | | = | 0.001 | - | 0.5 | | = | mA | mA | mA | 61VY2/61VY3: loFF=100 μA G3VM-63G: lo=500 mA |
| | | | Typical | | 1 | | 25 | 1 | 0.15 | 1 | | G3VM-61G1:IF=5 mA, Io=400 mA G3VM-61G2:IF=2 mA, Io=400 mA | | |
| Output | Maximum resistance with output ON | Ron | Maximum | | 2 | | 50 | : | 2 | 2.5 | Ω | G3VM-61G3 :Ir=0.5 mA, Io=400 mA, Ic1s G3VM-61VY1 :Ir=2 mA, Io=100 mA, Ic1s G3VM-61VY2 :Ir=5 mA, Io=500 mA G3VM-61VY3 :Ir=5 mA, Io=700 mA G3VM-63G: Io=500 mA | | |
| | Current leakage | | Typical | - | | 1 | - | = | 2 | - | | .,, | | |
| | when the relay is open | İLEAK | Maximum | | | | 1000 | | | | nA | Voff=60 V | | |
| | Capacitance between terminals | Coff | Typical | | 130 | | 10 | 20 | 1 | 00 | pF | G3VM-61G1/61G2/61G3/61VY1/ 61VY2/61VY3: V=0, f=1 MHz G3VM-63G: V=0, f=1 MHz, IF=5 mA | | |
| | pacitance between terminals | Cı-o | Typical | | | | 8.0 | | | | pF | f=1 MHz, Vs=0 V | | |
| | ulation resistance ween I/O terminals | Ri-o | Minimum Typical | | | | 1000 108 | | | | ΜΩ | Vi-o=500 VDC, RoH≤60% | | |
| | rn-ON time | ton | Typical | 0.8 | 3 | 3.5 | 1 | 0.6 | 2 | 0.3 | | G3VM-61G1/63G:IF=5 mA, RL=200 Ω, VDD=20 V *1 | | |
| Tu | m-ON time | ION | Maximum | 2 | 8 | 10 | 5 | 2 | 3 | 1 | ms | G3VM-61G2 :IF=2 mA, RL=200 Ω, VDD=20 V *1 G3VM-61G3 :IF=0.5 mA, | | |
| Tu | rn-OFF time | toff | Typical | 0.1 | | 1 | | 0.1 0.7 | | | 1115 | RL=200 Ω, VDD=20 V *1 G3VM-61VY1:IF=2 mA, RL=200 Ω, VDD=10 V *1 | | |
| ı | -OFF time | IOFF | Maximum | 0.5 | 3 | 5 | | 0.5 | | 3 | | RL=200 Ω, VDD=10 V *1 G3VM-61VY2/61VY3:IF=5 mA, RL=200 Ω, VDD=20 V *1 | | |

*1. Turn-ON and Turn-OFF Times







*2. These values are for Relays with NC contacts

■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

| Item | Symbol | | G3VM-61G1 | G3VM-61G2 | G3VM-61G3 | G3VM-61VY1 | G3VM-61VY2 | G3VM-61VY3 | G3VM-63G | Unit |
|--------------------------------------|--------|---------|-----------|-----------|-----------|------------|------------|------------|----------|------|
| Load voltage (AC peak/DC) | VDD | Maximum | | | | 48 | | | | V |
| | | Minimum | 5 | | - | 2 | | 5 | | |
| Operating LED forward current | IF | Typical | 7.5 | 2 | 0.5 | 5 | 7. | .5 | - | mA |
| | | Maximum | | 25 | | 15 | | 25 | | IIIA |
| Continuous load current (AC peak/DC) | lo | Maximum | 400 | 33 | 20 | 80 | 500 | 700 | 500 | 1 |
| Ambient operating temperature | Ta | Minimum | -20 | | | | | | ∞ | |
| Ambient operating temperature | ·a | Maximum | 65 100 | | | | 00 | 85 | | |

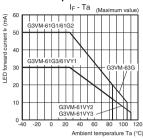
■Spacing and Insulation

| Item | G3VM-6□G□ | G3VM-61VY□ | Unit |
|------------------------------|-----------|------------|------|
| item | Mini | mum | Onit |
| Creepage distances | 4.0 | 5.0 | |
| Clearance distances | 4.0 | 5.0 | mm |
| Internal isolation thickness | 0.1 | 0.2 | 1 |

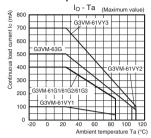
SOP

■Engineering Data

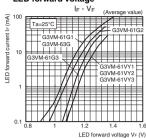
LED forward current vs. Ambient temperature



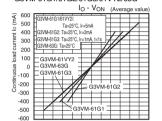
Continuous load current vs. Ambient temperature



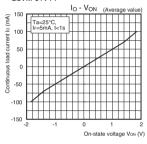
LED forward current vs. LED forward voltage



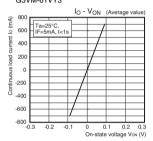
Continuous load current vs. On-state voltage G3VM-61G1/61G2/61G3/61VY2/63G



G3VM-61VY1

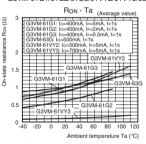


G3VM-61VY3

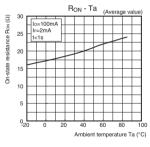


On-state resistance vs. Ambient temperature G3VM-61G1/61G2/61G3/61VY2/61VY3/63G

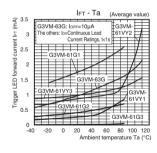
On-state voltage Von (V)



G3VM-61VY1

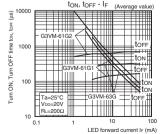


 Trigger LED forward current vs. Ambient temperature

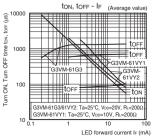


Turn ON, Turn OFF time vs. LED forward current

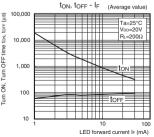




G3VM-61G3/61VY1/61VY2



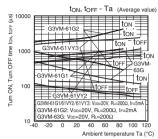
G3VM-61VY3



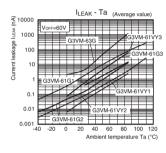
■Engineering Data

Turn ON, Turn OFF time vs. Ambient temperature G3VM-61G1/61G2/63G/61VY2/61VY3

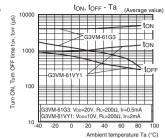
 $G3VM-6\square G\square/61VY$



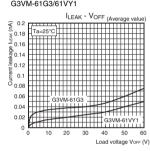
Current leakage vs. Ambient temperature



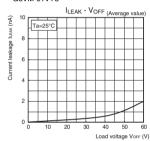
G3VM-61G3/61VY1



Current leakage vs. Load voltage G3VM-61G3/61VY1



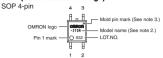
G3VM-61VY3



■Appearance/Terminal Arrangement/Internal Connections

Appearance

SOP (Small Outline Package)



Special SOP 4-pin (G3VM-61VY1/61VY2/61VY3)



Note: 1. The actual product is marked differently from the image shown here. Note: 2. "G3VM" does not appear in the model number on the Relay.

Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

●Terminal Arrangement/Internal Connections (Top View)

G3VM-61G1/61G2/61G3/61VY1/61VY2/61VY3



G3VM-63G



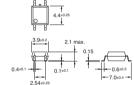
■Dimensions (Unit: mm)

SOP (Small Outline Package) SOP 4-pin



Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



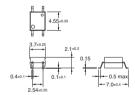
Note: The actual product is marked differently from the image shown here.

Special SOP 4-pin *(G3VM-61VY1/61VY2/61VY3)



Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



* The external dimensions are different from those of the standard SOP 4-pin, but the mounting pad dimensions are the same. Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized 🔊

| Model | Approved Standards | Contact form | File No. | |
|------------|--------------------|-----------------|----------|--|
| G3VM-61G1 | | | | |
| G3VM-61G2 | | | | |
| G3VM-61G3 | | 1a | | |
| G3VM-61VY1 | | (SPST-NO) | | |
| G3VM-61VY2 | UL recognized | | E80555 | |
| G3VM-61VY3 | | | | |
| G3VM-63G | | 1b (SPST-NC) | | |

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

General-purpose MOS FET Relays in SOP 4-pin packages

for a wide range of applications

MOS FET Relays SOP 4-pin, General-purpose Type

• Load voltage: 80 V

RoHS Compliant



Note: The actual product is marked differently from the image shown here.

■Application Examples

- Semiconductor test equipment
- Test & Measurement equipment
- Communication equipment
- Security equipment
- Industrial equipment
 Power circuit
- Amusement equipment

■Package (Unit:mm, Average)

SOP 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

1. Load Voltage 2. Contact form 8: 80 V 1: 1a (SPST-N

Contact form 3. Package
1: 1a (SPST-NO) G: SOP 4-pin

4. Other informations

When specifications overlap, serial code is added in the recorded order.

■Ordering Information

| Ī | | | | | Continuous | Stick pa | ckaging | Tape packa | aging |
|---|---------|-----------------|-------------------------------|--------------------------------|----------------------|-----------|--------------------------------|---------------|--------------------------------|
| | Package | Contact form | Terminals | Load voltage (peak value) * | voltage load current | Model | Minimum package quantity | Model | Minimum package quantity |
| | SOP4 | 1a (SPST-NO) | Surface-mounting Terminals | 80 V | 350 mA | G3VM-81G1 | 100 pcs. | G3VM-81G1(TR) | 2,500 pcs. |

* The AC peak and DC value are given for the load voltage and continuous load current.

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | Symbol | G3VM-81G1 | Unit | Measurement conditions |
|-------|--------------------------------------|------------------|-------------|-------|-------------------------------|
| | LED forward current | lF | 50 | mA | |
| Ħ | LED forward current reduction rate | ΔIF/°C | -0.5 | mA/°C | Ta ≥ 25°C |
| Input | LED reverse voltage | VR | 5 | V | |
| | Connection temperature | TJ | 125 | °C | |
| | Load voltage (AC peak/DC) | Voff | 80 | V | |
| Ħ | Continuous load current (AC peak/DC) | lo | 350 | mA | |
| utput | ON current reduction rate | Δlo/°C | -3.5 | mA/°C | Ta ≥ 25°C |
| 0 | Pulse ON current | lop | 1.05 | mA | t=100 ms, Duty=1/10 |
| | Connection temperature | TJ | 125 | °C | |
| Die | electric strength between I/O * | V _{I-O} | 1500 | Vrms | AC for 1 min |
| An | bient operating temperature | Ta | -20 to +85 | °C | With no ising or condensation |
| An | bient storage temperature | Tstg | -40 to +125 | °C | With no icing or condensation |
| So | Idering temperature | - | 260 | °C | 10 s |

^{*} The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

| | Item | Symbol | | G3VM-81G1 | Unit | Measurement conditions | |
|--------|-----------------------------------|--------|---------|-----------------|-------|----------------------------|--|
| | | | Minimum | 1.0 | | | |
| | LED forward voltage | VF | Typical | 1.15 | V | IF=10 mA | |
| | | | Maximum | 1.3 | | | |
| Input | Reverse current | lr | Maximum | 10 | μА | V _R =5 V | |
| 효 | Capacitance between terminals | Ст | Typical | 15 | pF | V=0, f=1 MHz | |
| | Triange I ED forward assessed | let | Typical | 1 | mA | I- 050 A | |
| | Trigger LED forward current | IFT | Maximum | 4 | mA | Io=350 mA | |
| | Release LED forward current | IFC | Minimum | 0.2 | mA | Ioff=10 μA | |
| | Maximum resistance with output | Ron | Typical | 1 | Ω | IF=5 mA, Io=350 mA | |
| | ON | | Maximum | 1.2 | 22 | II =3 IIIA, 10=330 IIIA | |
| Output | Current leakage when the relay is | ILEAK | Typical | 0.2 | nA | Voff=30 V, Ta=50°C | |
| D. | open | | Maximum | 1 | | | |
| | Capacitance between terminals | Coff | Typical | 30 | pF | V=0, f=100 MHz | |
| | Capacitance between terminals | OUFF | Maximum | 40 | рі | V=0, 1=100 WII 12 | |
| Ca | pacitance between I/O terminals | Ci-o | Typical | 0.8 | pF | f=1 MHz, Vs=0V | |
| | sulation resistance between I/O | Ri-o | Minimum | 1000 | MO. | Vi-o=500 VDC, RoH≤60% | |
| ter | minals | THO | Typical | 10 ⁸ | IVISZ | VI-0=300 VDC, 1101120076 | |
| Tu | rn-ON time | ton | Typical | 0.3 | | | |
| Tu | in Oit and | ION | Maximum | 0.5 | ms | IF=5 mA, RL=200 Ω , | |
| Tu | rn-OFF time | tore | Typical | 0.3 | .113 | VDD=20 V * | |
| 14 | in or r unic | 1011 | Maximum | 0.5 | | | |

* Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

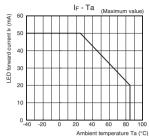
| Item | Symbol | | G3VM-81G1 | Unit | |
|--------------------------------------|--------|---------|-----------|------|--|
| Load voltage (AC peak/DC) | VDD | Maximum | 64 | V | |
| Operating LED forward current | lF | Minimum | 5 | | |
| Operating LED forward current | II- | Maximum | 30 | mA | |
| Continuous load current (AC peak/DC) | lo | Maximum | 350 | | |
| Ambient operating temperature | Ta | Minimum | -20 | °C | |
| Ambient operating temperature | I a | Maximum | 60 | | |

■Spacing and Insulation

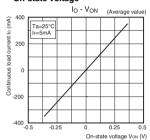
| Item | Minimum | Unit |
|------------------------------|---------|------|
| Creepage distances | 4.0 | |
| Clearance distances | 4.0 | mm |
| Internal isolation thickness | 0.1 | |

G3VM-81G

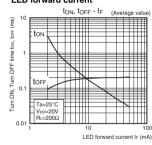
LED forward current vs. Ambient temperature



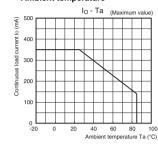
Continuous load current vs. On-state voltage



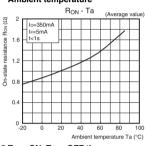
● Turn ON, Turn OFF time vs. LED forward current



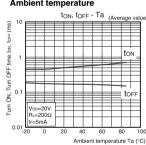
Continuous load current vs. Ambient temperature



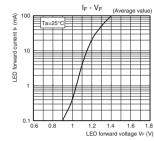
On-state resistance vs. Ambient temperature



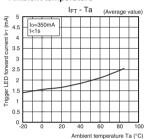
● Turn ON, Turn OFF time vs. Ambient temperature



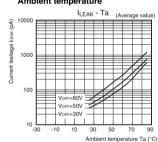
LED forward current vs. LED forward voltage



Trigger LED forward current vs. Ambient temperature



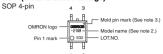
Current leakage vs. Ambient temperature



■Appearance / Terminal Arrangement / Internal Connections

Appearance

SOP (Small Outline Package)



Note: 1. The actual product is marked differently from the image shown here.

Note: 2. "G3VM" does not appear in the model number on the Relay.

Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

Terminal Arrangement/Internal Connections (Top View)

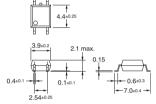


■Dimensions (Unit: mm)



Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized 🔧

| Approved Standards | Contact form | File No. |
|--------------------|-----------------|----------|
| UL (recognized) | 1a (SPST-NO) | E80555 |

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

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G3VM-201G / S5

MOS FET Relays SOP 4-pin, General-purpose Type

General-purpose MOS FET Relays in SOP 4-pin packages for a wide range of applications

Load voltage: 200 V

RoHS Compliant



Note: The actual product is marked differently from the

■Application Examples

• Semiconductor test equipment

Communication equipment

- nt
- ---
- Test & Measurement equipment
- Security equipment
 Industrial equipment
- Power circuit

Amusement equipment

■Package

(Unit: mm, Average)

SOP 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

1. Load Voltage 2. Contact form

20 : 200 V 1 : 1a (SPST-NO)

3. PackageG : SOP 4-pin

4. Other informations

When specifications overlap, serial code is added in the recorded order.

Note: The model number legend for the G3VM-S5 is different from the above legend.

■Ordering Information

| | | | | | Stick packa | ging | Tape packaging | |
|---------|-----------------|-------------------------------|-----------------------------|--|-------------|--------------------------------|----------------|--------------------------------|
| Package | Contact form | Terminals | Load voltage (peak value) * | Continuous load current (peak value) * | Model | Minimum package quantity | Model | Minimum package quantity |
| | | Surface-mounting Terminals | 200 V | 50 mA | G3VM-201G | | G3VM-201G(TR) | 2,500 pcs. |
| SOP4 | 1a | | | 200 mA | G3VM-201G1 | - 100 pcs. | G3VM-201G1(TR) | |
| 30F4 | (SPST-NO) | | | | G3VM-201G2 | | G3VM-201G2(TR) | |
| | | | | | G3VM-S5 | | G3VM-S5(TR) | |

^{*} The AC peak and DC value are given for the load voltage and continuous load current.

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | Symbol | G3VM-201G | G3VM-201G1 | G3VM-201G2 | G3VM-S5 | Unit | Measurement conditions |
|---|--------------------------------------|-----------|-------------|------------|------------|------------------|--------------|---------------------------|
| | LED forward current | lF | 5 | 0 | 30 | 50 | mA | |
| Ħ | Repetitive peak LED forward current | IFP | | | 1 | | А | 100 μs pulses, 100 pps |
| Input | LED forward current reduction rate | ΔIF/°C | -0 | .5 | -0.3 | -0.5 | mA/°C | Ta ≥ 25°C |
| | LED reverse voltage | VR | | ţ | 5 | | V | |
| | Connection temperature | TJ | | 12 | 25 | | °C | |
| | Load voltage (AC peak/DC) | Voff | | 20 | 00 | | V | |
| Ħ | Continuous load current (AC peak/DC) | lo | 50 | | 200 | | mA | |
| Output | ON current reduction rate | Δlo/°C | -0.5 | | -2 | | mA/°C | Ta ≥ 25°C |
| 0 | Pulse ON current | lop | 150 | | 600 | | mA | t=100 ms, Duty=1/10 |
| | Connection temperature | TJ | | 12 | 25 | | °C | |
| Di | electric strength between I/O * | Vi-0 1500 | | | Vrms | AC for 1 min | | |
| Ambient operating temperature Ta -40 to +85 | | | +85 | | °C | With no icing or | | |
| An | nbient storage temperature | Tstg | -55 to +125 | | | °C | condensation | |
| Sc | Idering temperature | - | | 26 | 30 | | °C | 10 s |

^{*} The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

| | Item | Symbol | | G3VM-201G | G3VM-201G1 | G3VM-201G2 | G3VM-S5 | Unit | Measurement conditions |
|--------|-----------------------------------|------------------------------|---------|-------------|-----------------------|------------|---------|--|---|
| | LED forward | | Minimum | 1 | .0 | 1.1 | 1.0 | | |
| | voltage | VF | Typical | 1. | 15 | 1.27 | 1.15 | V | IF=10 mA |
| | voltage | | Maximum | 1 | .3 | 1.4 1.3 | | | |
| | Reverse current | IR | Maximum | | 1 | 10 | | | VR=5 V |
| nbnt | Capacitance between terminals | Ст | Typical | | 3 | 0 | pF | V=0, f=1 MHz | |
| | Trigger LED forward | let | Typical | 1 | 0.4 | 1 | 1 | mA | G3VM-201G : Io=50 mA |
| | current | IF1 | Maximum | 3 | 1 | 0.2 | 3 | IIIA | G3VM-201G1/201G2/S5 : lo=200 mA |
| | Release LED | IFC | Minimum | 0 | .1 | ı | 0.1 | mA | Ioff=100 μA |
| | forward current | | Typical | | - | 0.001 | - | III | 100 μΑ |
| | Maximum | | Typical | 40 | | 5 | | | G3VM-201G/S5: IF=5 mA, |
| = | resistance with output ON | Ron | Maximum | aximum 50 8 | | | Ω | lo=Continuous load current ratings G3VM-201G1 : IF=2 mA, Io=200 mA G3VM-201G2 : IF=0.5 mA, Io=200 mA, t < 1s | |
| Output | Current leakage | | Typical | - | | 1 | - | nA | G3VM-201G : Voff=160 V |
| ō | when the relay is open | ILEAK | Maximum | 1 | | 1,000 | | | G3VM-201G1/201G2/S5 : Voff=200 V |
| | Capacitance | COFF | Typical | 15 | 9 | 0 | 100 | ρF | G3VM-201G : V=0, f=1 MHz, t < 10s |
| | between terminals | COFF | Maximum | 20 | | - | | ρı | G3VM-201G1/201G2/S5 : V=0, f=1 MHz |
| | pacitance between I/ terminals | Cı-o | Typical | | 0 | .8 | | pF | f=1 MHz, Vs=0 V |
| Ins | sulation resistance | Ri-o | Minimum | | 10 | 00 | | МΩ | Vi-o=500 VDC, RoH≤60% |
| be | tween I/O terminals | en I/O terminals Typical 108 | | IVISZ | VI-0=500 VDC, NOR≤60% | | | | |
| Tu | rn-ON time | ton | Typical | ı | 3 | 3.5 | 0.6 | | G3VM-201G/S5 : IF=5 mA, RL=200 Ω, Vpp=20 V * |
| 10 | | LOIV | Maximum | 0.5 | 8 | 10 | 1.5 | ms | G3VM-201G1 : IF=2 mA, RL=200 Ω, |
| To | rn-OFF time | torr | Typical | 1 | 0.6 | 1 | 0.1 | 1113 | S V _{DD} =20 V * G3VM-201G2 : I _F =0.5 mA, R _L =200 Ω. |
| lu | III-OI I IIIIIB | IUFF | Maximum | 0.2 | 3 | 5 | 1 | | VDD=20 V * |

* Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

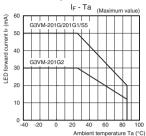
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

| Item | Symbol | | G3VM-201G | G3VM-201G1 | G3VM-201G2 | G3VM-S5 | Unit | | |
|--------------------------------------|--------|---------|-----------|------------|------------|---------|------|--|--|
| Load voltage (AC peak/DC) | VDD | Maximum | | 160 | | 200 | V | | |
| 0 : 100 | | Minimum | 5 | | = | 5 | | | |
| Operating LED forward current | lF | Typical | 7.5 | 2 | 0.5 | 7.5 | | | |
| Current | | Maximum | 15 | | 25 | • | mA | | |
| Continuous load current (AC peak/DC) | lo | Maximum | 40 | 10 | 60 | 130 | | | |
| Ambient operating | Ta | Minimum | | -2 | 20 | | °C | | |
| temperature | I a | Maximum | | 65 | | | 65 | | |

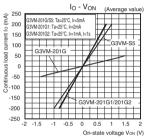
■Spacing and Insulation

| Item | Minimum | Unit |
|------------------------------|---------|------|
| Creepage distances | 4.0 | |
| Clearance distances | 4.0 | mm |
| Internal isolation thickness | 0.1 | |

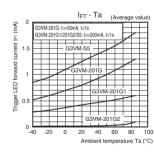
LED forward current vs. Ambient temperature



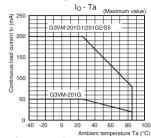
Continuous load current vs. On-state voltage



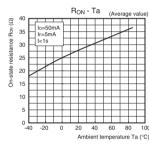
Trigger LED forward current vs. Ambient temperature



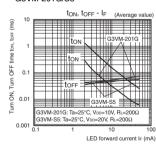
Continuous load current vs. Ambient temperature



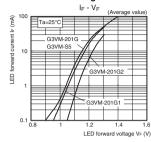
On-state resistance vs. Ambient temperature G3VM-201G



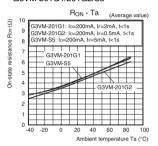
● Turn ON, Turn OFF time vs. LED forward current G3VM-201G/S5



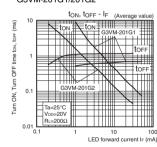
LED forward current vs. LED forward voltage



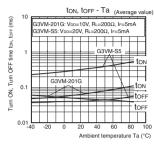
G3VM-201G1/201G2/S5



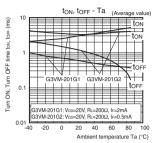
G3VM-201G1/201G2



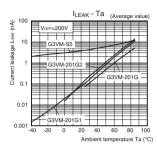
● Turn ON, Turn OFF time vs. Ambient temperature G3VM-201G/S5



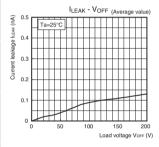
G3VM-201G1/201G2



Current leakage vs. Ambient temperature



Current leakage vs. Load voltage G3VM-201G2



■Appearance / Terminal Arrangement / Internal Connections

Appearance

SOP (Small Outline Package)

SOP 4-pin OMBON Inco Model name (See note 2.) LOTNO

G3VM-201G□/S5

Note: 1. The actual product is marked differently from the image shown here.

Note: 2. "G3VM" does not appear in the model number on the Relay. Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

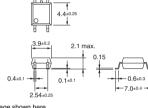
●Terminal Arrangement/Internal Connections (Top View)



■Dimensions (Unit: mm)

Surface-mounting Terminals

Weight: 0.1 a



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Note: The actual product is marked differently from the image shown here

■Approved Standards

UL recognized

| Approved Sta | ndards | Contact form | File No. |
|--------------|--------|--------------|----------|
| UL (recogni | zed) | 1a (SPST-NO) | E80555 |

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

G3VM-35\G\\/351VY/401

MOS FET Relays SOP 4-pin, General-purpose Type

General-purpose MOS FET Relays in SOP 4-pin packages for a wide range of applications

- Contact form: 1a (SPST-NO) or 1b (SPST-NC)
- . Load voltage: 350 V or 400 V

RoHS Compliant





Note: The actual product is marked differently from the image shown here.

■Application Examples

- · Semiconductor test equipment
- Test & Measurement equipment
- Communication equipment
- · Various battery-driven devices
- Security equipment
- Industrial equipment
- Power circuit
- · Amusement equipment

■Package

(Unit: mm, Average)

SOP 4-pin

Special SOP 4-pin





Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM----1 2 3 4 5

1. Load Voltage

2. Contact form 35:350 V 1:1a (SPST-NO) 40:400 V 3:1b (SPST-NC)

4. Additional functions

None: Dielectric strength between I/O 1500 V Dielectric strength between I/O 3750 V

3. Package

G: SOP 4-pin

V: Special SOP 4-pin

5. Other informations

When specifications overlap, serial code is added in the recorded order

■Ordering Information

| | | | Load voltage | Continuous | Stick p | ackaging | Tape pac | kaging |
|-------------|--------------|-----------|----------------|--------------------------------|--------------|-----------------------------|------------------|-----------------------------|
| Package | Contact form | Terminals | (peak value) * | load current (peak value) * | Model | Minimum package quantity | Model | Minimum package quantity |
| SOP4 | | | | 100 mA | G3VM-351G1 | 100 pcs. | G3VM-351G1(TR) | 2,500 pcs. |
| 30F4 | 1a | | | | G3VM-351G | 100 pcs. | G3VM-351G(TR) | 2,500 pcs. |
| Special SOP | (SPST-NO) | Surface- | 350 V | 110 mA | G3VM-351VY | 125 pcs. | G3VM-351VY(TR05) | 500 pcs. |
| 4-PIN | | mounting | | | G3VIVI-351V1 | 125 pcs. | G3VM-351VY(TR) | 3,000 pcs. |
| | 1b (SPST-NC) | Terminals | | 120 mA | G3VM-353G | | G3VM-353G(TR) | |
| SOP4 | 1a | | 400 V | 100 mA | G3VM-401G1 | 100 pcs. | G3VM-401G1(TR) | 2,500 pcs. |
| | (SPST-NO) | | 400 V | 120 mA | G3VM-401G | | G3VM-401G(TR) | |

^{*} The AC peak and DC value are given for the load voltage and continuous load current.

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)", "(TR05)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | Symbol | G3VM-351G1 | G3VM-351G | G3VM-351VY | G3VM-353G | G3VM-401G1 | G3VM-401G | Unit | Measurement conditions |
|--------|--------------------------------------|--------|-------------|-----------|-------------|-----------|------------|-----------|--------------|------------------------|
| | LED forward current | lF | 50 | | 30 | 50 | 30 | 50 | mA | |
| Input | LED forward current reduction rate | ΔIF/°C | -0.5 | | -0.3 | -0.5 | -0.3 | -0.5 | mA/°C | Ta ≥ 25°C |
| 트 | LED reverse voltage | VR | Ę | 5 | 6 | | 5 | | ٧ | |
| | Connection temperature | TJ | | | 12 | 25 | | | °C | |
| | Load voltage (AC peak/DC) | Voff | 350 | | | 400 | | | V | |
| 15 | Continuous load current (AC peak/DC) | lo | 100 1 | | 10 | 120 | 100 | 120 | mA | |
| Output | ON current reduction rate | Δlo/°C | -1.0 - | | .1 | -1.2 | -1.0 | -1.2 | mA/°C | Ta ≥ 25°C |
| 0 | Pulse ON current | lop | 300 3 | | 330 360 | | 300 | 360 | mA | t=100 ms, Duty=1/10 |
| | Connection temperature | TJ | | | 12 | 25 | • | • | °C | |
| Di | electric strength between I/O * | VI-O | 15 | 00 | 3750 | | 1500 | 1500 | | AC for 1 min |
| Ar | mbient operating temperature | Ta | -40 to | +85 | -40 to +110 | | -40 to +85 | | °C | With no icing or |
| Ar | mbient storage temperature | Tstg | -55 to +125 | | | | | °C | condensation | |
| S | oldering temperature | - | | | 26 | 60 | | | ç | 10 s |

^{*} The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

□G□/351VY/401G[

■Electrical Characteristics (Ta = 25°C)

| | Item | Symbol | | G3VM- 351G1 | G3VM- 351G | G3VM- 351VY | G3VM- 353G | G3VM- 401G1 | G3VM- 401G | Unit | Measurement conditions |
|--------|---|--------------|---------|----------------|---------------|----------------|---------------|----------------|---------------|-------|--|
| | LED forward | | Minimum | 1 | .0 | 1.1 | 1.0 | 1.1 | 1.0 | | |
| | voltage | VF | Typical | 1. | 15 | 1.27 | 1.15 | 1.27 | 1.15 | V | IF=10 mA |
| | Tomago | | Maximum | 1. | .3 | 1.4 | 1.3 | 1.4 | 1.3 | | |
| | Reverse current | lR | Maximum | | | 1 | 0 | | | μΑ | V _R =5 V |
| # | Capacitance between terminals | Ст | Typical | | | 3 | 0 | | | pF | V=0, f=1 MHz |
| Input | Trigger LED | IFT (IFC) | Typical | 0.4 | 1 | 0.8 | 1 | - | 1 | mA | G3VM-351G1/351G/401G1 : lo=100 mA G3VM-351VY : lo=110 mA |
| | forward current | *2 | Maximum | 1 | | 3 | | 0.2 | 3 | IIIA | G3VM-353G : IoFF=10 μA G3VM-401G : Io=120 mA |
| | Release LED | IFC (IFT) | Minimum | | 0 | .1 | | - | 0.1 | mA | G3VM-351G1/351VY/351G/401G1/401G : IOFF=100 µA |
| | forward current | *2 | Typical | - | - | 0.4 | - | 0.001 | - | | G3VM-353G : lo=120 mA |
| | | | Typical | 35 (| (25) | 35 (22) | 15 | 18 | 17 | | G3VM-351G1 : IF=2 mA, Io=100 mA Values in parentheses are for t < 1 s. G3VM-351G : IF=5 mA, Io=110 mA |
| Output | Maximum resistance with output ON | Ron | Maximum | 50 (35) | | | 25 | 3 | 5 | Ω | Values in parentheses are for $t < 1 s$. G3VM-351VY: IF=5 mA, Io=110 mA Values in parentheses are for $t < 1 s$. G3VM-353G: Io=120 mA G3VM-401G1: IF=0.5 mA, Io=100 mA, $t < 1 s$. G3VM-401G1: IF=5 mA, Io=120 mA |
| | Current leakage when the relay is | ILEAK | Typical | 1 | - | 1 | - | 1 | - | nA. | G3VM-351G1/351VY/351G: Voff=350 V G3VM-353G: Voff=350 V. If=5 mA |
| | open | ILEAK | Maximum | | | 1,0 | 000 | | | IIA | G3VM-401G1/401G: Voff=400 V |
| | Capacitance between terminals | Coff | Typical | 35 | 30 | 30 | 65 | 7 | 0 | pF | G3VM-351G1/351VY/351G/401G1/401G : V=0, f=1 MHz G3VM-353G : V=0, f=1 MHz, IF=5 mA |
| | pacitance between terminals | Cı-o | Typical | | | | .8 | | | pF | f=1 MHz, Vs=0 V |
| | sulation resistance | Ri-o | Minimum | | | | 00 | | | МΩ | Vi-o=500 VDC, RoH≤60% |
| be | tween I/O terminals | 111-0 | Typical | | | 10 | D8 | | | 14177 | VF0=000 VD0, 1101120070 |
| т | rn-ON time | | Typical | 1 | 0.3 | 0.5 | - | 2 | 0.3 | | G3VM-351G1: |
| Tu | m-on ume | ton | Maximum | 5 | | 1 | | 10 | 1 | ms | IF=2 mA, RL=200 Ω, VDD=20 V G3VM-401G1 : |
| т., | Turn-OFF time | torr | Typical | 1 | 0 | .1 | - | 1 | 0.1 | | IF=0.5 mA, RL=200 Ω, VDD=20 V |
| Tu | III-OFF UIIIE | IOFF | Maximum | 3 | 1 | 0.5 | 3 | 5 | 1 |] | Others : IF=5 mA, RL=200 Ω, VDD=20 V *1 |

*1. Turn-ON and Turn-OFF Times





G3VM-351G1/G/VY



G3VM-353G

*2. These values are for Relays with NC contacts

■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

| | | , | | · · · · · · · · · · · · · · · · · · · | , , , , , , , , | | | | |
|--------------------------------------|--------|---------|------------|---------------------------------------|-----------------|-----------|------------|-----------|-------|
| Item | Symbol | | G3VM-351G1 | G3VM-351G | G3VM-351VY | G3VM-353G | G3VM-401G1 | G3VM-401G | Unit |
| Load voltage (AC peak/DC) | VDD | Maximum | | 2 | 30 | | 32 | 20 | V |
| | | Minimum | - | | 5 | | - | 5 | |
| Operating LED forward current | lF | Typical | 2 | 7.5 | | - | 0.5 | 7.5 | mA |
| | | Maximum | | 25 | | | | | 111/4 |
| Continuous load current (AC peak/DC) | lo | Maximum | 80 | 100 | 110 | 120 | 80 | 120 | |
| Ambient operating temperature | Ta | Minimum | | | -2 | 20 | | | °C |
| Ambient operating temperature | l la | Maximum | 6 | 5 | 100 | 6 | i5 | | |

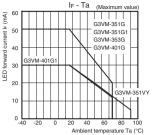
■Spacing and Insulation

| Item | G3VM-35 G /401G | Unit | | |
|------------------------------|-----------------|-------|----|--|
| item | Mini | Uilit | | |
| Creepage distances | 4.0 | 5.0 | | |
| Clearance distances | 4.0 | 5.0 | mm | |
| Internal isolation thickness | 0.1 | 0.2 | | |

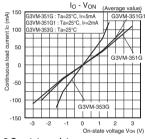
SOP

■Engineering Data

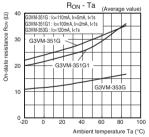
LED forward current vs. Ambient temperature



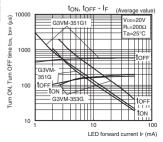
Continuous load current vs. On-state voltage G3VM-351G/351G1/353G



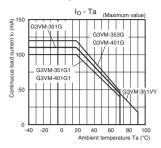
On-state resistance vs. Ambient temperature G3VM-351G/351G1/353G



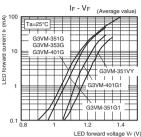
Turn ON, Turn OFF time vs. LED forward current G3VM-351G/351G1/353G



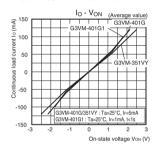
Continuous load current vs. Ambient temperature



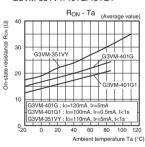
● LED forward current vs. LED forward voltage



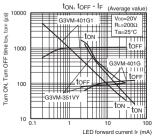
G3VM-351VY/401G/401G1



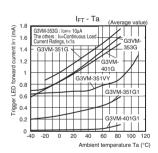
G3VM-351VY/401G/401G1



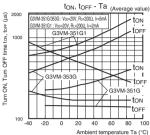
G3VM-351VY/401G/401G1



Trigger LED forward current vs. Ambient temperature

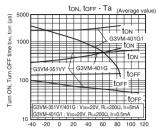


● Turn ON, Turn OFF time vs. Ambient temperature G3VM-351G/351G1/353G



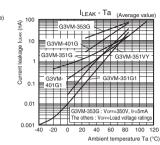
 $G3VM-35\square G\square/351VY/401G\square$

G3VM-351VY/401G/401G1

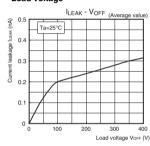


Ambient temperature Ta (°C)

Current leakage vs. Ambient temperature



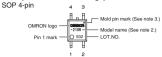
 Current leakage vs. Load voltage



■Appearance / Terminal Arrangement / Internal Connections

Appearance

SOP (Small Outline Package)



Special SOP 4-pin (G3VM-351VY)



Note: 1. The actual product is marked differently from the image shown here. Note: 2. "G3VM" does not appear in the model number on the Relay.

Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

Terminal Arrangement/Internal Connections (Top View)

G3VM-351G1/G/VY G3VM-401G1/G



G3VM-353G



■Dimensions (Unit: mm)

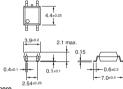
SOP (Small Outline Package)

SOP 4-pin



Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



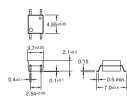
Note: The actual product is marked differently from the image shown here

Special SOP 4-pin * (G3VM-351VY)



Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



* The external dimensions are different from those of the standard SOP 4-pin, but the mounting pad dimensions are the same. **Note:** The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized 💫

| Model | Approved Standards | Contact form | File No. |
|--|--------------------|------------------------------|----------|
| G3VM-351G1 G3VM-351G G3VM-401G G3VM-351VY | UL (recognized) | 1a (SPST-NO) | E80555 |
| G3VM-353G | | 1b (SPST-NC) | |
| G3VM-401G1 | | UL certification is pending. | |

Models Certified by BSI for EN/IEC Standards

| Model | Approved Standards | Contact form | File No. |
|-----------|------------------------------|--------------|----------|
| G3VM-401G | EN62368-1 (BSI certified) | 1a (SPST-NO) | VC669262 |

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

G3VM-35 G / 351VY / 401G



MOS FET Relays SOP 6-pin, General-purpose Type

General-purpose MOS FET Relays in SOP 6-pin packages for a wide range of applications

- Contact form: 1a (SPST-NO) or 1b (SPST-NC)
- Load voltage: 60 V, 200 V, 350 V, or 400 V



Note: The actual product is marked differently from the image shown here.

3. Package

H: SOP 6-pin

RoHS Compliant

■Package

SOP 6-pin

■Application Examples

Semiconductor test equipment

(Unit: mm, Average)

- Communication equipment
- Test & Measurement equipment
- Security equipment
- Industrial equipment
- Power circuit

■Model Number Legend

G3VM-

6.3

Note: The actual product is marked differently from the image shown here.

1 2 3 4

1. Load Voltage 6:60 V 2. Contact form 1:1a (SPST-NO)

3 : 1b (SPST-NC)

20 : 200 V 35 : 350 V 40 : 400 V

4. Other informations

When specifications overlap, serial code is added in the recorded order.

Amusement equipment

■Ordering Information

| | | | Load voltage | | load current alue) * | Stick packaging | | Tape packaging | | | | | | | | | | |
|---------|-----------------|------------------|------------------|--------------------|-------------------------|------------------|--------------------------------|----------------|--------------------------------|-----------|--|---------------|--------|--------|------------|--|----------------|--|
| Package | Contact form | | (peak value) * | Connection A, B | Connection C | Model | Minimum package quantity | Model | Minimum package quantity | | | | | | | | | |
| | | | 60 V | 400 mA | 800 mA | G3VM-61H1 | | G3VM-61H1(TR) | | | | | | | | | | |
| | 1a (SPST-NO) | | Surface mounting | Surface-mounting | Surface mounting | Surface mounting | | | | | | 200 V | 200 mA | 400 mA | G3VM-201H1 | | G3VM-201H1(TR) | |
| | (6. 6. 116) | Surface mounting | | | | | | 110 mA | 220 mA | G3VM-351H | | G3VM-351H(TR) | | | | | | |
| SOP6 | 1b (SPST-NC) | Terminals | 350 V | 120 mA | 240 mA | G3VM-353H | 75 pcs. | G3VM-353H(TR) | 2,500 pcs. | | | | | | | | | |
| | 1a (SPST-NO) | | 400 V | 120 MA | 240 MA | G3VM-401H | | G3VM-401H(TR) | | | | | | | | | | |

* The AC peak and DC value are given for the load voltage and continuous load current.

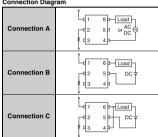
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | | Symbol | G3VM-61H1 | G3VM-201H1 | G3VM-351H | G3VM-353H | G3VM-401H | Unit | Measurement conditions |
|--------|-----------------------------------|------------------------------|------------|-----------|-------------|-----------|-----------|-----------|------------------|------------------------|
| | LED forward curre | ent | lF | | • | 50 | | | mA | |
| Input | LED forward curre rate | ent reduction | ΔIF/°C | | | mA/°C | Ta≥25°C | | | |
| = | LED reverse volta | ge | VR | | | 5 | | | V | |
| | Connection tempe | onnection temperature TJ 125 | | | | | °C | | | |
| | Load voltage (AC | peak/DC) | Voff | 60 | 200 | 35 | 50 | 400 | V | |
| | | Connection A | | 400 | 200 | 110 | 1/ | 20 | | Connection A: |
| | Continuous load current | Connection B | lo | 400 | 200 | 110 | 12 | .0 | mA | AC peak/DC |
| μ | | Connection C | | 800 | 400 | 220 | 24 | 10 | | Connection B and C: DC |
| Output | ON current | Connection A | | -4.0 | -2.0 | -1.1 | -1 | .2 | | |
| _ | reduction rate | Connection B | Δlo/°C | | | | | | mA/°C | Ta ≥ 25°C |
| | | Connection C | | -8.0 | -4.0 | -2.2 | -2 | .4 | | |
| | Pulse ON current | | lop | 1200 | 600 | 330 | 36 | 60 | mA | t=100 ms, Duty=1/10 |
| | Connection temper | erature | TJ | | | 125 | | | °C | |
| Di | Dielectric strength between I/O * | | Vi-o | | | 1500 | | | Vrms | AC for 1 min |
| Ar | nbient operating ter | Ta | -40 to +85 | | | | | | With no icing or | |
| Ar | nbient storage temp | Tstg | | | -55 to +125 | | | °C | condensation | |
| So | ldering temperature | е | - | | | 260 | | | °C | 10 s |

^{*} The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

Connection Diagram



■Electrical Characteristics (Ta = 25°C)

| | Item | | Symbol | | G3VM-61H1 | G3VM-201H1 | G3VM-351H | G3VM-353H | G3VM-401H | Unit | Measurement conditions | |
|---------|----------------------------------|-----------------|--------------------|---------|-----------|------------|------------|-----------|-----------------------|-------|--|--|
| H | | | , | Minimum | | | 1.0 | | | | | |
| | LED forward | voltage | VF | Typical | | | 1.15 | | | v | IF=10 mA | |
| | | | | Maximum | | | 1.3 | | | | | |
| | Reverse curr | ent | l _B | Maximum | | | 10 | | | μА | V _R =5 V | |
| | The first of | citance between | | Typical | 30 | | | | | pF | V=0, f=1 MHz | |
| Input | Trigger LED 1 | orward | IFT (IFC) | Typical | 1.6 | | 1 | I | | mA | G3VM-61H1/201H1/351H/401H: Io=Continuous load current | |
| | current | | *2 | Maximum | | | 3 | | | mA | ratings G3VM-353H : Ioff=10 μA | |
| | Release LED current | forward | IFC (IFT) *2 | Minimum | | | 0.1 | | | mA | G3VM-61H1/201H1/351H/401H : IoFF=100 μA G3VM-353H : Io=120 mA | |
| | | Connection A | | | 1 | 5 | 35 (25) | 15 | 17 | | G3VM-61H1/201H1/351H/401H : IF=5 mA. | |
| | Maximum | Connection B | | Typical | 0.5 | 3 | 28 | 8 | 11 | | lo=Continuous load current | |
| | resistance | Connection C | Bon | | 0.25 | 1.5 | 14 | 4 | 6 | Ω | ratings | |
| | with output ON | Connection A | HON | | 2 | 8 | 50 (35) | 25 | 35 | 32 | Values in parentheses are for t < 1 s. G3VM-353H: | |
| + | | Connection B | | Maximum | 1 | 5 | 40 | 14 | 20 | | Io=Continuous load current ratings | |
| Cuthnut | - | Connection C | | | - | = | 20 | = | - | | | |
| ō | Current leaka relay is open | ge when the | İLEAK | Maximum | | | 1 | | | μА | G3VM-61H1/201H1/351H/401H : Voff=Load voltage ratings G3VM-353H : Voff=350 V, If=5 mA | |
| | Capacitance terminals | between | Coff | Typical | 130 | 100 | 30 | 65 | 70 | pF | G3VM-61H1/201H1/351H/401H: V=0, f=1 MHz G3VM-353H: V=0, f=1 MHz, IF=5 mA | |
| | Capacitance between I/O erminals | | Cı-o | Typical | | | 0.8 | | | pF | f=1 MHz, Vs=0 V | |
| | sulation resista | | Ri-o | Minimum | 1000 | | | МΩ | Vi-o=500 VDC, RoH≤60% | | | |
| b | petween I/O terminals | | ni-0 | Typical | | | 108 | | | IVISZ | VIOESUU VDC, nOHS60% | |
| т | Turn-ON time Turn-OFF time | | ton | Typical | 0.8 | 0.6 | 0.3 | - | 0.3 | | | |
| Ľ | | | tON | Maximum | 2 | 1.5 | | 1 | | ms | IF=5 mA, RL=200 Ω, VDD=20 V *1 | |
| т | | | tore | Typical | | 0.1 | | - | 0.1 | 1115 | 17-3 IIIA, IIL-200 12, VDD=20 V *1 | |
| ' | | | 1011 | Maximum | 0.5 | 1 | | 3 | 1 | | | |

- *1. Turn-ON and Turn-OFF Times
- *2. These values are for Relays with NC contacts



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

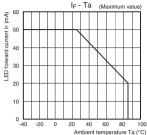
| Item | Symbol | | G3VM-61H1 | G3VM-201H1 | G3VM-351H | G3VM-353H | G3VM-401H | Unit | |
|--------------------------------------|--------|---------|-----------|------------|-----------|-----------|-----------|------|--|
| Load voltage (AC peak/DC) | VDD | Maximum | 48 | 160 | 280 | | 320 | V | |
| | | Minimum | | • | 5 | | • | | |
| Operating LED forward current | lF | Typical | 7 | .5 | 10 | 1 | 7.5 | mA | |
| | | Maximum | | | 25 | | • | IIIA | |
| Continuous load current (AC peak/DC) | lo | Maximum | 400 | 130 | 100 | 12 | 20 | | |
| Ambient operating temperature | Ta | Minimum | | | -20 | | | °C | |
| Ambient operating temperature | I d | Maximum | 65 | 60 | | 65 | | C | |

■Spacing and Insulation

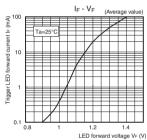
| Item | Minimum | Unit |
|------------------------------|---------|------|
| Creepage distances | 4.0 | |
| Clearance distances | 4.0 | mm |
| Internal isolation thickness | 0.1 | |

G3VM H ■Engineering Data

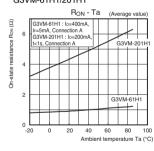
LED forward current vs. Ambient temperature



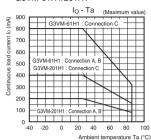
 LED forward current vs. LED forward voltage



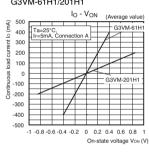
On-state resistance vs. Ambient temperature G3VM-61H1/201H1



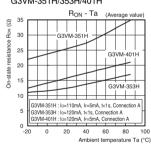
Continuous load current vs. Ambient temperature G3VM-61H1/201H1



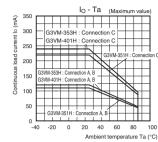
Continuous load current vs. On-state voltage G3VM-61H1/201H1



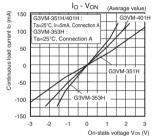
G3VM-351H/353H/401H



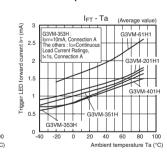
G3VM-351H/353H/401H



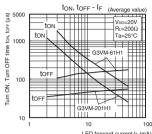
G3VM-351H/353H/401H



Trigger LED forward current vs. Ambient temperature

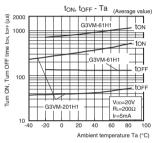


Turn ON, Turn OFF time vs. LED forward current G3VM-61H1/201H1

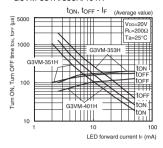


LED forward current IF (mA)

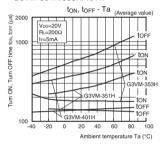
Turn ON, Turn OFF time vs. Ambient temperature G3VM-61H1/201H1



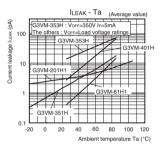
G3VM-351H/353H/401H



G3VM-351H/353H/401H



Current leakage vs. Ambient temperature



■Appearance / Terminal Arrangement / Internal Connections

Appearance

SOP (Small Outline Package)

SOP 6-pin Mold nin mark (See note 3.) - Model name (See note 2.) - LOT NO

Note: 1. The actual product is marked differently from the image shown here. Note: 2. "G3VM" does not appear in the model number on the Relay.

Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

●Terminal Arrangement/Internal Connections (Top View)

G3VM-61H1/201H1/351H/401H



G3VM-353H

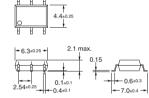


■Dimensions (Unit: mm)



Surface-mounting Terminals

Weight: 0.13 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized 🔊

| Model | Approved Standards | Contact form | File No. |
|--------------------------------------|--------------------|--------------|----------|
| G3VM-61H1 G3VM-201H1 G3VM-351H | UL (recognized) | 1a (SPST-NO) | E80555 |
| G3VM-353H | , , , , | 1b (SPST-NC) | |
| G3VM-401H | | 1a (SPST-NO) | |

Models Certified by BSI for EN/IEC Standards

| Model | Approved Standards | Contact form | File No. |
|-----------|--------------------------------------|--------------|--------------|
| G3VM-401H | EN 60950/EN 60065 (BSI certified) | 1a (SPST-NO) | 8884 8885 |

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

MOS FET Relays in SOP 4-pin packages for high load voltages

• Load voltage: 600 V



Note: The actual product is marked differently from the image shown here.

RoHS Compliant

■Application Examples

- Semiconductor test equipment
- Test & Measurement equipment
- Communication equipment
- Various battery-driven devices
- Security equipment
- Industrial equipment
- Power circuit
- · Amusement equipment

■Package (Unit: mm, Average)

SOP 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM- __ _ _ _ _ _ _

1. Load Voltage 60:600 V 2. Contact form 1:1a (SPST-NO) 3. Package G: SOP 4-pin

4. Other informations

When specifications overlap, serial code is added in the recorded order.

■Ordering Information

| | | | | | Stick packa | ging | Tape packaging | | |
|---------|-----------------|------------------|-----------------------------|--|-------------|--------------------------------|----------------|--------------------------------|--|
| Package | Contact form | Terminals | Load voltage (peak value) * | Continuous load current (peak value) * | Model | Minimum package quantity | Model | Minimum package quantity | |
| SOP4 | 1a | Surface-mounting | 600 V | 70 mA | G3VM-601G1 | 100 pcs. | G3VM-601G1(TR) | 2,500 pcs. | |
| 3014 | (SPST-NO) | Terminals | 000 V | 90 mA | G3VM-601G | 100 pcs. | G3VM-601G(TR) | | |

* The AC peak and DC value are given for the load voltage and continuous load current.

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | Symbol | G3VM-601G1 | G3VM-601G | Unit | Measurement conditions |
|-------|--------------------------------------|-------------------|------------|-----------|--------------|---------------------------|
| | LED forward current | lF | 30 | 50 | mA | |
| ti | Repetitive peak LED forward current | IFP | | 1 | Α | 100 μs pulses, 100 pps |
| Input | LED forward current reduction rate | ΔIF/°C | -0.3 | -0.5 | mA/°C | Ta ≥ 25°C |
| | LED reverse voltage | VR | | 5 | V | |
| | Connection temperature | TJ | 125 | | | |
| | Load voltage (AC peak/DC) | Voff | 60 | 00 | V | |
| = | Continuous load current (AC peak/DC) | lo | 70 | 90 | mA | |
| utput | ON current reduction rate | Δlo/°C | -0.7 | -0.9 | mA/°C | Ta ≥ 25°C |
| 0 | Pulse ON current | lop | 210 | 270 | mA | t=100 ms, Duty=1/10 |
| | Connection temperature | TJ | 12 | 25 | °C | |
| Di | electric strength between I/O * | V _I -O | 15 | 00 | Vrms | AC for 1 min |
| Ar | mbient operating temperature | Ta | -40 to +85 | | | With no icing or |
| Ar | mbient storage temperature | Tstg | -55 to | °C | condensation | |
| S | oldering temperature | - | 260 | | | 10 s |

^{*} The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

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G3VM-601G ■Electrical Characteristics (Ta = 25°C)

| = | | | | | | | |
|--------|-------------------------------|--------|---------|------------|----------------|-------|---|
| | Item | Symbol | | G3VM-601G1 | G3VM-601G | Unit | Measurement conditions |
| | | | Minimum | 1.1 | 1.0 | | |
| | LED forward voltage | VF | Typical | 1.27 | 1.15 | V | IF=10 mA |
| | | | Maximum | 1.4 | 1.3 | | |
| | Reverse current | IR | Maximum | 1 | 0 | μΑ | VR=5 V |
| Input | Capacitance between terminals | Ст | Typical | 3 | 0 | pF | V=0, f=1 MHz |
| | Trigger LED forward | let | Typical | - | 0.4 | mA | G3VM-601G1 : Io=70 mA |
| | current | IFT | Maximum | 0.2 | 1 | mA | G3VM-601G : Io=90 mA |
| | Release LED forward | IEC | Minimum | - | 0.1 | mA | Ioff=100 μA |
| | current | | Typical | 0.001 | - | | 16.11=160 μ2.1 |
| | Maximum resistance with | BON | Typical | 35 | 45 | Ω | G3VM-601G1 : Ir=0.5 mA, Io=70 mA, t < 1 s |
| | output ON | HON | Maximum | 6 | 0 | 12 | G3VM-601G : IF=2 mA, Io=90 mA |
| Output | Current leakage when the | İLEAK | Typical | 1 | = | nA | Voff=600 V |
| Out | relay is open | | Maximum | 1,000 | | | VOFF=600 V |
| | Capacitance between terminals | Coff | Typical | 7 | 5 | pF | V=0, f=1 MHz |
| | apacitance between I/O minals | Сю | Typical | 0 | .8 | pF | f=1 MHz, Vs=0 V |
| In | sulation resistance | RI-0 | Minimum | 10 | 00 | ΜΩ | Vi-o=500 VDC, RoH≤60% |
| be | tween I/O terminals | HI-O | Typical | 1 | O ⁸ | IVISZ | VI-0=500 VDC, R0HS60% |
| т. | rn-ON time | ton | Typical | 2 | 2 | | G3VM-601G1 : IF=0.5 mA, RL=200 Ω, |
| 11 | IIII-ON UIIIE | ION | Maximum | 10 | 8 | | VDD=10 V * |
| т. | rn-OFF time | torr | Typical | 1 | 0.5 | ms | G3VM-601G : IF=2 mA, |
| 11 | IIII-OFF IIIIIE | TOFF | Maximum | 5 | 3 | | RL=200 Ω, VDD=10 V * |

* Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

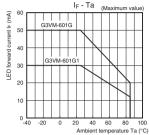
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

| Item | Symbol | | G3VM-601G1 | G3VM-601G | Unit | |
|--------------------------------------|--------|---------|------------|-----------|------|--|
| Load voltage (AC peak/DC) | VDD | Maximum | 48 | 80 | V | |
| Operating LED forward | le . | Typical | 0.5 | 2 | | |
| current | IF- | Maximum | 25 | | | |
| Continuous load current (AC peak/DC) | lo | Maximum | 60 | 70 | mA | |
| Ambient operating | Ta | Minimum | -2 | 20 | °C | |
| temperature | I I d | Maximum | 6 | | | |

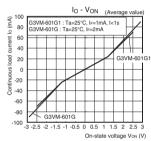
■Spacing and Insulation

| Item | Minimum | Unit |
|------------------------------|---------|------|
| Creepage distances | 4.0 | |
| Clearance distances | 4.0 | mm |
| Internal isolation thickness | 0.1 | |

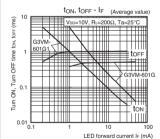
LED forward current vs. Ambient temperature



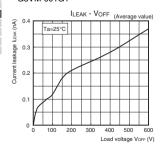
Continuous load current vs. On-state voltage



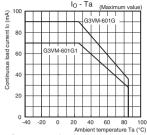
 Turn ON, Turn OFF time vs. LED forward current



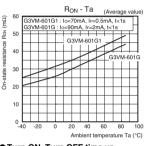
● Current leakage vs. Load voltage G3VM-601G1



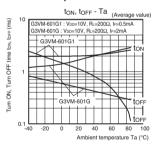
Continuous load current vs. Ambient temperature



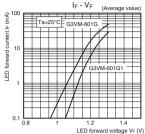
On-state resistance vs.
 Ambient temperature



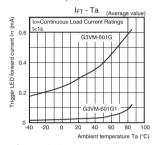
Turn ON, Turn OFF time vs. Ambient temperature



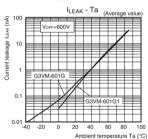
LED forward current vs. LED forward voltage



Trigger LED forward current vs. Ambient temperature



Current leakage vs. Ambient temperature

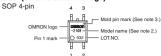


■Appearance / Terminal Arrangement / Internal Connections

Appearance

SOP (Small Outline Package)

G3VM-601G



Note: 1. The actual product is marked differently from the image shown here.

Note: 2. "G3VM" does not appear in the model number on the Relay.

Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

●Terminal Arrangement/Internal Connections (Top View)

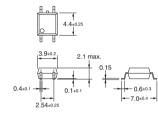


■Dimensions (Unit: mm)



Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Note: The actual product is marked differently from the image shown here

■Approved Standards

UL recognized

| ١ | Approved Standards | Contact form | File No. | | |
|---|--------------------|--------------|----------|--|--|
| | UL (recognized) | 1a (SPST-NO) | E80555 | | |

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

MOS FET Relays DIP 8-pin, Multi-contact-pair Type

MOS FET Relays in DIP 8-pin packages with multiple contact pairs for a wide range of circuits

- Contact form: 2a (DPST-NO), 2b (DPST-NC), 1a1b (SPST-NO/SPST-NC)
- Load voltage: 60 V, 350 V, or 400 V



91

Note: The actual product is marked differently from the image shown here.

RoHS Compliant

■Application Examples

- Communication equipment
- Test & Measurement equipment

■Package (Unit: mm, Average)

DIP 8-pin

PCB Terminals



Surface-mounting Terminals



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-1 2 3 4 5

1. Load Voltage

6: 60 V

35: 350 V

40: 400 V

- 2. Contact form 2:2a (DPST-NO)
 - 4: 2b (DPST-NC)
- 5:1a1b
- 3. Package C: DIP 8-pin with PCB terminals
- F: DIP 8-pin with surface-mounting
- terminals
- (SPST-NO/SPST-NC)

4. Additional functions 5. Other informations R: Low ON resistance

When specifications overlap, serial code is added in the recorded order.

■Ordering Information

| ſ | | | | Continuous load current | | Stick packaging | | Tape packag | ing |
|---|-----------------|-------------------------------|------------------------------|-------------------------|---------------|-------------------------------|---------------------|-------------------------------|---------------------|
| ч | Package | Contact | Load voltage (peak value) | | | Model | Minimum | Model | Minimum |
| ۱ | · uomugo | form | * | (peak value) * | PCB Terminals | Surface-mounting Terminals | package quantity | Surface-mounting Terminals | package quantity |
| ı | 2a (DPST-NO) | 60 V | 500 mA | G3VM-62C1 | G3VM-62F1 | | G3VM-62F1(TR) | | |
| Н | | (DPST-NO) | | 120 mA | G3VM-352C | G3VM-352F | | G3VM-352F(TR) | |
| | | 2b (DPST-NC) | 350 V | 150 mA | G3VM-354C | G3VM-354F | | G3VM-354F(TR) | |
| | | 1a1b (SPST-NO/ SPST-NC) | | G3VM-355CR (| G3VM-355FR | 50 pcs. | G3VM-355FR(TR) | 1,500 pcs. | |
| | | 2a (DPST-NO) | 400 V | | G3VM-402C | G3VM-402F | | G3VM-402F(TR) | |

* The AC peak and DC value are given for the load voltage and continuous load current.

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | Symbol | G3VM-62C1 G3VM-62F1 | G3VM-352C G3VM-352F | G3VM-354C G3VM-354F | G3VM-355CR G3VM-355FR | G3VM-402C G3VM-402F | Unit | Measurement conditions |
|--------|--------------------------------------|--------|------------------------|------------------------|------------------------|--------------------------|------------------------|-------|------------------------|
| | LED forward current | lF | | | 50 | | | mA | |
| + | Repetitive peak LED forward current | IFP | | | 1 | | | Α | 100 μs pulses, 100 pps |
| Input | LED forward current reduction rate | ΔIF/°C | | | -0.5 | | | mA/°C | Ta ≥ 25°C |
| | LED reverse voltage | VR | | | V | | | | |
| | Connection temperature | TJ | 125 | | | | | °C | |
| | Load voltage (AC peak/DC) | Voff | 60 | | 350 | 400 | | V | |
| ont | Continuous load current (AC peak/DC) | lo | 500 | 120 | 150 | 12 | 20 | mA | |
| Output | ON current reduction rate | Δlo/°C | -5 | -1.2 | -1.5 | -1 | .2 | mA/°C | Ta≥25°C |
| | Pulse ON current | lop | 1,500 | 360 | 450 | 36 | 30 | mA | t=100 ms, Duty=1/10 |
| | Connection temperature | TJ | | | 125 | | | °C | |
| Di | electric strength between I/O * | VI-O | | | 2,500 | | | Vrms | AC for 1 min |
| An | nbient operating temperature | Ta | | | -40 to +85 | | | °C | With no icing or |
| An | Ambient storage temperature | | | | -55 to +125 | | | °C | condensation |
| Sc | Idering temperature | - | | | 260 | | | °C | 10 s |

^{*} The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

| | | Item | Symbol | | G3VM-62C1 G3VM-62F1 | G3VM-352C G3VM-352F | G3VM-354C G3VM-354F | G3VM-355CR G3VM-355FR | G3VM-402C G3VM-402F | Unit | Measurement conditions | |
|---|-------|--|--------------------|---------|------------------------|------------------------|------------------------|--------------------------|---|-------|--|--|
| | Π. | LED forward | | Minimum | | | 1.0 | | | | | |
| | | voltage | VF | Typical | | | 1.15 | | | ٧ | IF=10 mA | |
| | | voltage | | Maximum | | | 1.3 | | | | | |
| | F | Reverse current | ln | Maximum | | | 10 | | | μΑ | V _R =5 V | |
| | | Capacitance between terminals | Ст | Typical | | | 30 | | | pF | V=0, f=1 MHz | |
| | mdr - | Trigger LED | lft | Typical | 1.6 | | | 1 | | | G3VM-62C1/62F1/352C/352F/ 402C/402F: Io=Continuous load current ratings | |
| | | forward current | (IFC) *2 Maximu | | 3 | | | | | mA | G3VM-354C/354F: IoFF=10 μA G3VM-355CR/355FR: 1a: Io=120 mA, 1b: IoFF=10 μA | |
| | 11.5 | Release LED forward current | IFC (IFT) *2 | Minimum | | | 0.1 | mA | G3VM-62C1/62F1/352C/352F/ 402C/402F: loFF=100 µA G3VM-354C/354F: lo=150 mA G3VM-355CR/355FR: 1a:loFF=10 µA, 1b: lo=120 mA | | | |
| | 11.5 | Maximum resistance with output ON | | | 1 | 35 (25) | 1 | 5 | 18 | Ω | G3VM-62C1/62F1/402C/402F/ 352C/352F: IF=5 mA, Io=Continuous load current ratings Values in parentheses are for t < 1 s. | |
| C | | | rion | Maximum | 2 | 50 (35) | 2 | 25 | 35 | | G3VM-354C/354F : lo=150 mA G3VM-355CR/355FR : 1a : lr=5 mA, lo=120 mA, 1b : lr=0 mA, lo=120 mA | |
| | (| Current leakage when the relay is open | ÎLEAK | Maximum | | 1 | | | | | G3VM-354C/354F: V=0, f=1 MHz, IF=5 mA G3VM-355CR/355FR: 1a: V=0, f=1 MHz 1b: V=0, f=1 MHz, IF=5 mA Others: V=0, f=1 MHz | |
| | t | Capacitance between terminals | Coff | Typical | 130 | 30 | 85 | 65 | 40 | pF | V=0, f=1 MHz | |
| | | acitance between terminals | Cı-o | Typical | | | 0.8 | | | pF | f=1 MHz, Vs=0 V | |
| | | lation resistance | Ri-o | Minimum | | | 1000 | | | МΩ | Vi-o=500 VDC, RoH≤60% | |
| 1 | betv | ween I/O terminals | 111-0 | Typical | | | 108 | | | IVISZ | VIO=500 VDO, 1101120076 | |
| | Turr | n-ON time | ton | Typical | 0.8 | 0.3 | 0.1 | - | - | | | |
| | Tull | 1 OI4 tillio | LON | Maximum | 2 | | 1 | 1a:1,1b:1 | 1 | ms | IF=5 mA, RL=200 Ω, VDD=20 V *1 | |
| | Turr | n-OFF time | toff | Typical | 0.1 | 0.1 | 1 | - | - | 1113 | 11 = 5 11/A, 112=200 32, VDD=20 V 41 | |
| | · uil | | LOFF | Maximum | 0.5 | 1 | 3 | 1a:1,1b:3 | 1 | | | |

*1. Turn-ON and Turn-OFF Times





■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

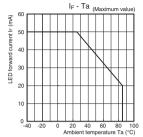
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

| Item Symbol | | | G3VM-62C1 G3VM-62F1 | G3VM-352C G3VM-352F | G3VM-354C G3VM-354F | G3VM-355CR G3VM-355FR | G3VM-402C G3VM-402F | Unit |
|--------------------------------------|-----|---------|------------------------|------------------------|------------------------|--------------------------|------------------------|------|
| Load voltage (AC peak/DC) | VDD | Maximum | 48 280 | | | 320 | ٧ | |
| | | Minimum | | | 5 | | | |
| Operating LED forward current | lF | Typical | 7. | .5 | - | | | mA |
| | | Maximum | | 25 | | | | |
| Continuous load current (AC peak/DC) | lo | Maximum | 500 | 100 | 150 | 120 | 100 | |
| Ambient operating temperature | Ta | Minimum | -20 | | | | | °C |
| Ambient operating temperature | ıa | Maximum | 65 | | | | | |

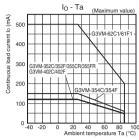
■Spacing and Insulation

| Item | Minimum | Unit |
|------------------------------|---------|------|
| Creepage distances | 7.0 | |
| Clearance distances | 7.0 | mm |
| Internal isolation thickness | 0.4 | |

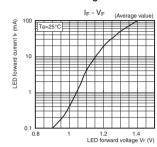
LED forward current vs. Ambient temperature



Continuous load current vs. Ambient temperature



LED forward current vs. LED forward voltage



Continuous load current vs. On-state voltage

I_O - V_{ON (Average value)}

 $G3VM-\Box C\Box/\Box F\Box/\Box CR/\Box FR$

G3VM-62C1/62F1

600

500

400

300

200

100 0

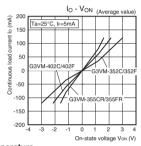
-100

-200 -300

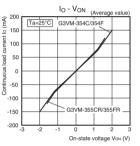
-400

load current lo (mA)

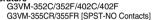


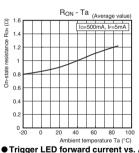


G3VM-354C/354F G3VM-355CR/355FR [SPST-NC Contacts]

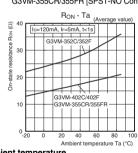


On-state voltage Von (V) On-state resistance vs. Ambient temperature G3VM-62C1/62F1

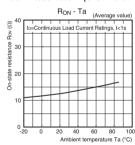




-600 -0.5 -0.4 -0.3 -0.2 -0.1 0 0.1 0.2 0.3 0.4 0.5

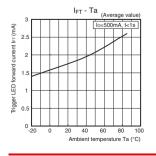


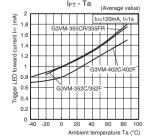
G3VM-354C/354F G3VM-355CR/355FR [SPST-NC Contacts]



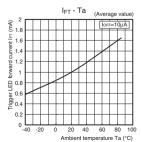
● Trigger LED forward current vs. Ambient temperature G3VM-62C1/62F1

G3VM-352C/352F/402C/402F G3VM-355CR/355FR [SPST-NO Contacts]

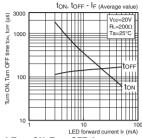




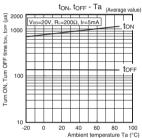
G3VM-354C/354F G3VM-355CR/355FR [SPST-NC Contacts]



● Turn ON, Turn OFF time vs. LED forward current G3VM-62C1/62F1

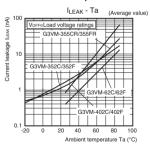


● Turn ON, Turn OFF time vs. Ambient temperature G3VM-62C1/62F1

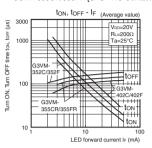


Current leakage vs. Ambient temperature

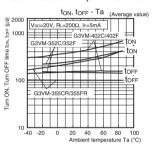
G3VM-62C1/62F1/352C/352F/402C/402F G3VM-355CR/355FR [SPST-NO Contacts]



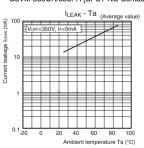
G3VM-352C/352F/402C/402F G3VM-355CR/355FR [SPST-NO Contacts]



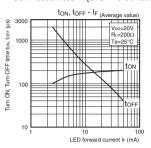
G3VM-352C/352F/402C/402F G3VM-355CR/355FR [SPST-NO Contacts]



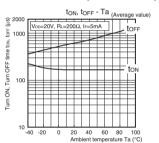
G3VM-354C/354F G3VM-355CR/355FR [SPST-NC Contacts]



G3VM-354C/354F G3VM-355CR/355FR [SPST-NC Contacts]



G3VM-354C/354F G3VM-355CR/355FR [SPST-NC Contacts]



$\square\mathsf{C}\square/\square\mathsf{F}\square/\square\mathsf{CR}/\square\mathsf{FR}$ ■Appearance / Terminal Arrangement / Internal Connections

Appearance

DIP (Dual Inline Package)

DIP 8-pin Mold pin mark (See note 3.) OMRON logo OMRON Model name (See note 2.) -62C1 Pin 1 mark LOTNO 932 团 J

G3VM-62C1/62F1/352C/352F/402C/402F

●Terminal Arrangement/Internal Connections (Top View)

G3VM-354C/354F

G3VM-355CR/355FR (1b)

Note: 1. The actual product is marked differently from the image shown here.

Note: 2. "G3VM" does not appear in the model number on the Relay.

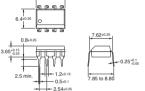
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

■Dimensions (Unit: mm)

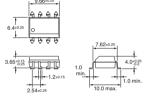
DIP 8-pin



PCB Terminals Weight: 0.54 g







PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

| Model | Approved Standards | Contact form | File No. |
|--|--------------------|------------------------|----------|
| G3VM-62C1 G3VM-62F1 G3VM-352C G3VM-352F G3VM-402C G3VM-402F | UL (recognized) | 2a (DPST-NO) | E80555 |
| G3VM-354C G3VM-354F | | 2b (DPST-NC) | |
| G3VM-355CR G3VM-355FR | | 1a1b (SPST-NO/SPST-NC) | |

Models Certified by BSI for EN/IEC Standards

| Model | Approved Standards | Contact form | File No. |
|-----------|--------------------|--------------|----------|
| G3VM-352C | EN 60950/EN 60065 | 2a (DPST-NO) | 8816 |
| G3VM-352F | (BSI certified) | | 8817 |

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.



Note: The actual product is marked differently from the image shown here.

■Application Examples

- · Semiconductor test equipment
- Test & Measurement equipment
- Communication equipment
- Security equipment
- Industrial equipment
- Power circuit

■Package (Unit: mm, Average)

SOP 8-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM----1 2 3 4 5

1. Load Voltage

2. Contact form 6: 60 V 2:2a (DPST-NO)

20:20 V 4:2b (DPST-NC)

35: 350 V 5: 1a1b (SPST-NO/SPST-NC)

40: 400 V

4. Additional functions R: Low ON resistance

5. Other informations

· Amusement equipment

When specifications overlap, serial code is added in the recorded order.

3. Package

J: SOP 8-pin

■Ordering Information

| | | | | | Stick packa | nging | Tape packa | Tape packaging | | | | | | | | |
|---------|-------------------------------|-----------------------------------|-----------------------------|--|-------------|--------------------------------|----------------|--------------------------------|--|--|-------|--------|-----------|---------|---------------|------------|
| Package | Contact form | Terminals | Load voltage (peak value) * | Continuous load current (peak value) * | Model | Minimum package quantity | Model | Minimum package quantity | | | | | | | | |
| | 2a | | 60 V | 400 mA | G3VM-62J1 | | G3VM-62J1(TR) | | | | | | | | | |
| | (DPST-NO) | | 200 V | 200 mA | G3VM-202J1 | 1 | G3VM-202J1(TR) | | | | | | | | | |
| | 1a1b (SPST-NO/ SPST-NC) | Surface- mounting Terminals | mounting | | 120 mA | G3VM-355JR | | G3VM-355JR(TR) | | | | | | | | |
| SOP8 | 2a (DPST-NO) | | | | | | | | | | 350 V | 110 mA | G3VM-352J | 50 pcs. | G3VM-352J(TR) | 2,500 pcs. |
| | 2b (DPST-NC) | | | | 120 mA | G3VM-354J | | G3VM-354J(TR) | | | | | | | | |
| | 2a (DPST-NO) | | 400 V | 120 1114 | G3VM-402J | | G3VM-402J(TR) | | | | | | | | | |

* The AC peak and DC value are given for the load voltage and continuous load current.

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

RoHS Compliant

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | Symbol | G3VM-62J1 | G3VM-202J1 | G3VM-355JR | G3VM-352J | G3VM-354J | G3VM-402J | Unit | Measurement conditions | |
|--------|--|--------|-----------|------------|------------|--------------|-----------|--------------|------------------|------------------------|--|
| | LED forward current | lF | | 50 | | | | | | | |
| Input | LED forward current reduction rate | ΔIF/°C | | | mA/°C | Ta ≥ 25°C | | | | | |
| = | LED reverse voltage | VR | | | | 5 | | | V | | |
| | Connection temperature | TJ | | 125 | | | | | | | |
| | Load voltage (AC peak/DC) | Voff | 60 | 200 | | 350 400 | | | | | |
| ont | Continuous load current (AC peak/DC) | | 400 | 200 | 120 | 110 | 1: | 20 | mA | | |
| Output | ON current reduction rate | Δlo/°C | -4.0 | -2.0 | -1.2 | -1.1 | -1 | .2 | mA/°C | Ta ≥ 25°C | |
| | Pulse ON current | lop | 1,200 | 600 | 360 | 330 | 3(| 60 | mA | t=100 ms, Duty=1/10 | |
| | Connection temperature | TJ | | | 1: | 25 | | | °C | | |
| Di | electric strength between I/O * | VI-O | | | Vrms | AC for 1 min | | | | | |
| An | Ambient operating temperature Ta -40 to +85 | | | | | | | °C | With no icing or | | |
| An | Ambient storage temperature Tstg -55 to +125 | | | | | | °C | condensation | | | |
| So | Idering temperature | - | | | 2 | 60 | | | °C | 10 s | |

^{*} The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

| | Item Symbol | | | G3VM- 62J1 | G3VM- 202J1 | G3VM- 355JR | G3VM- 352J | G3VM- 354J | G3VM- 402J | Unit | Measurement conditions |
|--------|--|---------------------------|---------|---------------|------------------|-------------------------|---------------|----------------------|---------------|-----------------|--|
| | LED forward | | Minimum | | | 1. | .0 | | | | |
| | voltage | VF | Typical | 1.15 | | | | | | ٧ | IF=10 mA |
| | | | Maximum | 1.3 | | | | | | | |
| | Reverse current | IR | Maximum | | | 1 | 0 | | | μА | V _R =5 V |
| | Capacitance between terminals | Ст | Typical | | | 3 | 0 | | | pF | V=0, f=1 MHz |
| Input | | ١. | Typical | 1.6 | | | 1 | | | | G3VM-62J1/202J1/352J/402J: |
| п | Trigger LED forward current | IFT (IFC) *2 | Maximum | | | 5 | 3 | | | mA | Io=Continuous load current ratings G3VM-355JR : 1a : Io=120 mA, 1b : IoFF=10 μA G3VM-354J : IoFF=10 μA |
| | Release LED forward current | IFC (IFT) *2 | Minimum | | | 0. | .1 | | | mA | G3VM-62J1/202J1/352J/402J : IoFF=100 μA G3VM-355JR : 1a : IoFF=10 μA, 1b : Io=120 mA G3VM-354J : Io=120 mA |
| | Maximum resistance with | Bon | Typical | 1 | 5 | 15 | 35 (25) | 15 | 17 | Ω | G3VM-62J1/202J1/352J/402J: IF=5 mA, Io=Continuous load current ratings G3VM-355JR: 1a: IF=5 mA, Io=120 mA, |
| | output ON | TION | Maximum | 2 | 8 | 25 | 50 (35) | 25 | 35 | | 1b : IF=0, Io=120 mA G3VM-352J : IF=5 mA, Io=110 mA, Values in parentheses are for t < 1 s. G3VM-354J : Io=120 mA |
| Output | Current leakage when the relay is open | ILEAK | Maximum | | 1 | | | | | | G3VM-62J1/202J1/352J1/402J: Vorre-Load voltage ratings G3VM-355JR: 1a: Vorre-350 V, 1b: Vorre-350 V, Ir=5 mA G3VM-354J: Vorre-350 V, Ir=5 mA |
| | Capacitance between terminals | Coff | Typical | 130 | 100 | 65 | 30 | 65 | 70 | pF | G3VM-62J1/202J1/352J/402J: V=0, f=1 MHz G3VM-355JR: 1a: V=0, f=1 MHz, 1b: V=0, f=1 MHz, F=5 mA G3VM-354J: V=0, f=1 MHz, IF=5 mA |
| | apacitance between I/ terminals | CI-O | Typical | | 0.8 | | | | pF | f=1 MHz, Vs=0 V | |
| | sulation resistance | Ri-o | Minimum | | 1000 | | MΩ | V⊦o=500 VDC, RoH≤60% | | | |
| be | tween I/O terminals | I/O terminals Typical 108 | | | IVISE | VF0=300 VB0, 1101130070 | | | | | |
| | | | Typical | 0.8 | 0.6 | - | 0.3 | - | 0.3 | | |
| Τι | ırn-ON time | ton | Maximum | 2 | 2 1.5 1a:1 1 1 1 | | ms | IF=0.5 mA, RL=200 Ω, | | | |
| _ | | | Typical | 0 | .1 | - | 0.1 | - | 0.1 | | VDD=20 V *1 |
| Τι | ırn-OFF time | toff | Maximum | 0.5 | 1 | 1a:1 1b:3 | 1 | 3 | 1 | | |

*1. Turn-ON and Turn-OFF Times



*2. These values are for Relays with NC contacts

■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

| Lacri terri ori tiris ilst is an independent condition, so it is not simultaneously satisfy several conditions. | | | | | | | | | | | |
|---|--------|---------|------------|------------|------------|-----------|-----------|-----------|------|--|--|
| Item | Symbol | | G3VM-62J1 | G3VM-202J1 | G3VM-355JR | G3VM-352J | G3VM-354J | G3VM-402J | Unit | | |
| Load voltage (AC peak/DC) | VDD | Maximum | 48 200 280 | | | | 320 | ٧ | | | |
| 0 " 150/ 1 | | Minimum | | 5 | | | | | | | |
| Operating LED forward current | lF | Typical | 7 | .5 | - | 10 | - | 7.5 | | | |
| Current | | Maximum | 25 | | | | | | mA | | |
| Continuous load current (AC peak/DC) | lo | Maximum | 400 | 130 | 120 | 100 | 1: | | | | |
| Ambient operating | Ta | Minimum | -20 | | | | | | | | |
| temperature | ı a | Maximum | | 65 | | | | | | | |

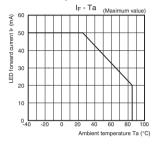
■Spacing and Insulation

| Item | Minimum | Unit |
|------------------------------|---------|------|
| Creepage distances | 4.0 | |
| Clearance distances | 4.0 | mm |
| Internal isolation thickness | 0.1 | |

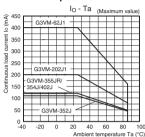
■Engineering Data

G3VM-\J

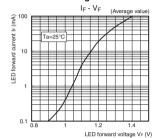
LED forward current vs. Ambient temperature



Continuous load current vs. Ambient temperature

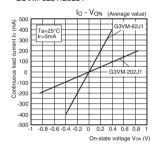


LED forward current vs. LED forward voltage

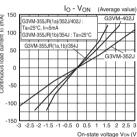


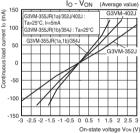
Continuous load current vs. On-state voltage

G3VM-62J1/202J1

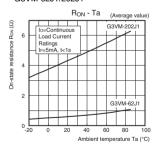


G3VM-355JR/352J/354J/402J

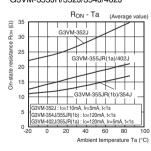




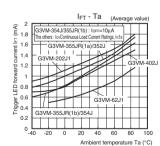
On-state resistance vs. Ambient temperature G3VM-62J1/202J1



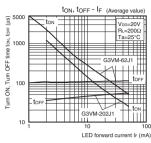
G3VM-355JR/352J/354J/402J



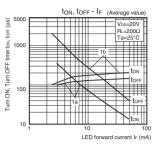
Trigger LED forward current vs. Ambient temperature



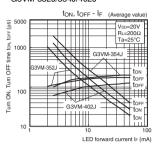
● Turn ON, Turn OFF time vs. LED forward current G3VM-62J1/202J1



G3VM-355JR

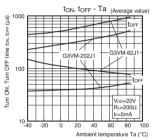


G3VM-352J/354J/402J

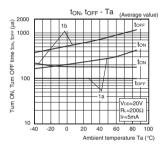


● Turn ON, Turn OFF time vs. Ambient temperature

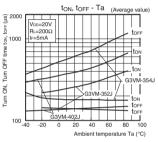
G3VM-62J1/202J1



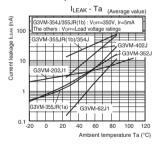
G3VM-355JR



G3VM-352J/354J/402J



Current leakage vs. Ambient temperature



■Appearance / Terminal Arrangement / Internal Connections

Appearance

SOP (Small Outline Package)

G3VM-□J□

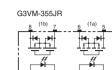
SOP 8-pin Mold pin mark (See note 3.) OMRON OMBON Iogo Model name (See note 2.) LOTNO

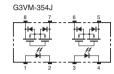
G3VM-62J1/202J1/352J/402J Note: 1. The actual product is marked differently from the image shown here. Note: 2. "G3VM" does not appear in the model number on the Relay.

Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark

(Top View)

●Terminal Arrangement/Internal Connections



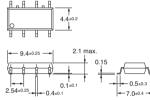


■Dimensions (Unit: mm)

is from a pin on the mold.

Surface-mounting Terminals

Weight: 0.2 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)

Note: The actual product is marked differently from the image shown here

■Approved Standards

UL recognized

| Model | Approved Standards | Contact form | File No. |
|------------|--------------------|------------------------|----------|
| G3VM-62J1 | | 2a (DPST-NO) | |
| G3VM-202J1 | UL (recognized) | 2a (DPS1-NO) | |
| G3VM-355JR | | 1a1b (SPST-NO/SPST-NC) | FOOTE |
| G3VM-352J | | 2a (DPST-NO) | E80555 |
| G3VM-354J | | 2b (DPST-NC) | |
| G3VM-402J | | 2a (DPST-NO) | |

Models Certified by BSI for EN/IEC Standards

| Model | Approved Standards | Contact form | File No. |
|-----------|--------------------------------------|--------------|--------------|
| G3VM-402J | EN 60950/EN 60065 (BSI certified) | 2a (DPST-NO) | 8884 8885 |

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

MOS FET Relays DIP 4-pin, High-current and Low-ON-resistance Type

MOS FET Relays in DIP 4-pin packages that achieve the low ON resistance and high switching capacity of a mechanical relay

Load voltage: 20 V, 40 V, 60 V, or 100 V

• 20-V Relay: Continuous load current of 3 A max. • 40-V Relay: Continuous load current of 2.5 A max.

• 60-V Relay: Continuous load current of 2 A max.

• 100-V Relay: Continuous load current of 1 A max.



Note: The actual product is marked differently from the image shown here.

RoHS Compliant

■Application Examples

- Communication equipment
- Test & Measurement equipment
- · Security equipment Industrial equipment
- Power circuit

■Package (Unit: mm, Average)

DIP 4-pin **PCB** Terminals



Surface-mounting Terminals



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-

1. Load Voltage

2. Contact form 2: 20 V 1:1a (SPST-NO)

40 V

6: 60 V 10: 100 V

4. Additional functions

R: Low ON resistance

3. Package

A: DIP 4-pin with PCB terminals

D: DIP 4-pin with surface-mounting

terminals

5. Other informations

When specifications overlap, serial code is added in the recorded order.

■Ordering Information

| | | | Load voltage (peak value) * | Continuous load current | | Stick packaging | Tape packaging | | |
|---|---------|-----------|--------------------------------|-------------------------|---------------|-------------------------------|---------------------|-------------------------------|---------------------|
| | Package | | | | | Model | Minimum | Model | Minimum |
| | | form | | | PCB Terminals | Surface-mounting Terminals | package quantity | Surface-mounting Terminals | package quantity |
| ſ | | | 20 V | 3 A | G3VM-21AR | G3VM-21DR | | G3VM-21DR(TR) | |
| | DIP4 | 1a | 40 V | 2.5 A | G3VM-41AR | G3VM-41DR | 100 pcs. | G3VM-41DR(TR) | 1.500 pcs. |
| | DIP4 (S | (SPST-NO) | 60 V | 2 A | G3VM-61AR | G3VM-61DR | 100 pcs. | G3VM-61DR(TR) | 1,500 pcs. |
| | | | 100 V | 1 A | G3VM-101AR | G3VM-101DR | | G3VM-101DR(TR) | |

* The AC peak and DC value are given for the load voltage and continuous load current.

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | Symbol | G3VM-21AR G3VM-21DR | G3VM-41AR G3VM-41DR | G3VM-61AR G3VM-61DR | G3VM-101AR G3VM-101DR | Unit | Measurement conditions |
|-------------------------------|---|-------------------|------------------------|------------------------|------------------------|--------------------------|-------|-------------------------------|
| | LED forward current | lF | | 3 | 0 | | mA | |
| + | Repetitive peak LED forward current | IFP | | | 1 | | Α | 100 μs pulses, 100 pps |
| Input | LED forward current reduction rate | ΔIF/°C | | -0.3 | | | | Ta ≥ 25°C |
| | LED reverse voltage | VR | | | 5 | | ٧ | |
| | Connection temperature | TJ | | 12 | 25 | °C | | |
| | Load voltage (AC peak/DC) | Voff | 20 | 40 | 60 | 100 | V | |
| nt | Continuous load current (AC peak/DC) | lo | 3 | 2.5 | 2 | 1 | Α | |
| Output | ON current reduction rate | Δlo/°C | -30 | -25 | -20 | -10 | mA/°C | Ta ≥ 25°C |
| | Pulse ON current | lop | 9 | 7.5 | 6 | 3 | Α | t=100 ms, Duty=1/10 |
| | Connection temperature | TJ | | 12 | 25 | | °C | |
| Di | electric strength between I/O * | V _I -o | | 2,5 | 600 | | Vrms | AC for 1 min |
| Ambient operating temperature | | Ta | | -40 to | +85 | | ô | With no icing or condensation |
| Ar | nbient storage temperature | Tstg | | -55 to | +125 | | °C | Willi no long or condensation |
| So | oldering temperature | - | | 26 | 60 | | ç | 10 s |

^{*} The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

| | Item | Symbol | | G3VM-21AR G3VM-21DR | G3VM-41AR G3VM-41DR | G3VM-61AR G3VM-61DR | G3VM-101AR G3VM-101DR | Unit | Measurement conditions | |
|--------|--|--------------|---------|------------------------|------------------------|------------------------|--------------------------|-------|---|--|
| | | | Minimum | | 1. | 18 | | | | |
| | LED forward voltage | VF | Typical | | 1.3 | 33 | | V | IF=10 mA | |
| | | | Maximum | | | 48 | | | | |
| | Reverse current | IR | Maximum | | 1 | 0 | | μА | VR=5 V | |
| ¥ | Capacitance between terminals | Ст | Typical | | 7 | 0 | | pF | V=0, f=1 MHz | |
| Input | Trigger LED forward | lft | Typical | 0.7 | | 0.5 | | mA | Io=1 A | |
| | current | (IFC) | Maximum | | 3 | 3 | | | | |
| | Release LED forward current | IFC (IFT) | Minimum | 0.1 | | | | mA | Ioff=10 μA | |
| | Maximum resistance with output ON | Ron | Typical | 40 | 50 | 80 | 250 | mΩ | G3VM-21AR/21DR/41AR/41DR/61AR/61DR : IF=5 mA, t < 1s, lo=2 A | |
| Output | | | Maximum | 80 | 150 | 200 | 700 | 11142 | G3VM-101AR/DR : IF=5 mA, t < 1s, lo=1 A | |
| | Current leakage when the relay is open | ILEAK | Maximum | | | 1 | | μА | Voff=Load voltage ratings | |
| | Capacitance between terminals | Coff | Typical | 30 | 00 | 250 | 200 | pF | V=0, f=1 MHz | |
| | apacitance between I/ terminals | Cı-o | Typical | | 0. | .8 | | pF | f=1 MHz, Vs=0 V | |
| | sulation resistance | Ri-o | Minimum | | 10 | 00 | | ΜΩ | Vi-o=500 VDC, RoH≤60% | |
| be | tween I/O terminals | 111-0 | Typical | | 10 | - | | 10152 | VI-0=300 VDC, 1101150078 | |
| Т | ırn-ON time | ton | Typical | 1 | | 0.8 | | | | |
| | 5.40 | | Maximum | | - | 5 | | ms | IF=5 mA, RL=200 Ω, VDD=20 V * | |
| Т | ırn-OFF time | toff | Typical | | | .3 | | 1113 | | |
| | 00 | 1311 | Maximum | | | 1 | | | | |

* Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

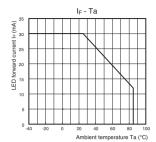
| Item | | G3VM-21AR G3VM-21DR | G3VM-41AR G3VM-41DR | G3VM-61AR G3VM-61DR | G3VM-101AR G3VM-101DR | Unit | | | | | |
|--------------------------------------|-----|------------------------|------------------------|------------------------|--------------------------|------|---|--|--|--|--|
| Load voltage (AC peak/DC) | VDD | Maximum | 16 | 32 | 48 | 80 | V | | | | |
| | | Minimum | | | 5 | | | | | | |
| Operating LED forward current | lF | Typical | 10 | | | | | | | | |
| | | Maximum | 25 | | | | | | | | |
| Continuous load current (AC peak/DC) | lo | Maximum | 3 | 2.5 | 2 | 1 | Α | | | | |
| Ambient operating temperature | Ta | Minimum | -20 | | | | | | | | |
| Ambient operating temperature | 1 a | Maximum | 65 | | | | | | | | |

■Spacing and Insulation

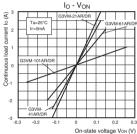
| Item | Minimum | Unit |
|------------------------------|---------|------|
| Creepage distances | 7.0 | |
| Clearance distances | 7.0 | mm |
| Internal isolation thickness | 0.4 | |

 $G3VM-\square AR/\square DR$

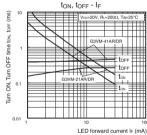
LED forward current vs. Ambient temperature



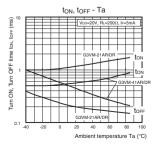
Continuous load current vs. On-state voltage



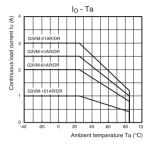
● Turn ON, Turn OFF time vs. LED forward current G3VM-21AR/21DR/41AR/41DR



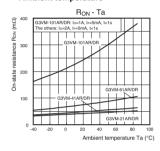
● Turn ON, Turn OFF time vs. Ambient temperature G3VM-21AR/21DR/41AR/41DR



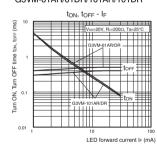
Continuous load current vs. Ambient temperature



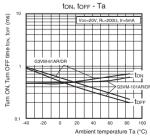
On-state resistance vs. Ambient temperature



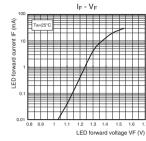
G3VM-61AR/61DR/101AR/101DR



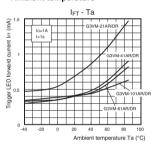
G3VM-61AR/61DR/101AR/101DR



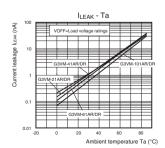
LED forward current vs. LED forward voltage



Trigger LED forward current vs. Ambient temperature



Current leakage vs. Ambient temperature



■Appearance / Terminal Arrangement / Internal Connections

Appearance

DIP (Dual Inline Package)

DIP 4-pin Mold pin mark (See note 3.) OMRON logo -21AR Model name (See note 2.) () 932 Pin 1 mark Ь

●Terminal Arrangement/Internal Connections (Top View)

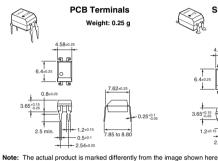


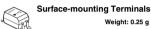
Note: 1. The actual product is marked differently from the image shown here.

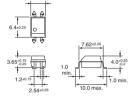
Note: 2. "G3VM" does not appear in the model number on the Relay.

Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

■Dimensions (Unit: mm)







PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



■Approved Standards

UL recognized

| Approved Standards | Contact form | File No. |
|--------------------|--------------|----------|
| UL (recognized) | 1a (SPST-NO) | E80555 |

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

MOS FET Relays DIP 6-pin, High-current and Low-ON-resistance Type

MOS FET Relays in DIP 6-pin packages that achieve the low ON resistance and high switching capacity of a mechanical relav

- Load voltage: 20 V, 40 V, 60 V, or 100 V
- 20-V Relay: Continuous load current of 4 A (8 A) max. *
- 40-V Relay: Continuous load current of 3.5 A (7 A) max. *
- 60-V G3VM-61BR/ER Relay: Continuous load current of 2.5 A max.
- 60-V G3VM-61BR1/ER1 Relay: Continuous load current of 3 A (6 A) max. *
- 100-V Relay: Continuous load current of 2 A (4 A) max. *
- * Values in parentheses are for connection C.



Note: The actual product is marked differently from the image shown here.

RoHS Compliant

■Application Examples

- Communication equipment
- · Security equipment
- Power circuit
- Test & Measurement equipment
- · Industrial equipment

■Package (Unit: mm, Average)

DIP 6-pin PCB Terminals

Surface-mounting Terminals



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-

1. Load Voltage 2. Contact form 2: 20 V 1:1a (SPST-NO)

4: 40 V 6: 60 V

10: 100 V

4. Additional functions

R: Low ON resistance

3. Package

B: DIP 6-pin with PCB terminals

E: DIP 6-pin with surface-mounting terminals

5. Other informations When specifications overlap, serial code is added in the recorded order.

■Ordering Information

| | | | Continuous | load current | | Stick packaging | | Tape packaging | | | | | |
|---------|-----------------|----------------|--------------------|-----------------|---------------|-------------------------------|---------------------|-------------------------------|---------------------|----------------|---------|---------------|------------|
| Package | Contact form | Load voltage | | | Model | | Minimum | Model | Minimum | | | | |
| Luckage | | (peak value) * | Connection A, B | Connection C | PCB Terminals | Surface-mounting Terminals | package quantity | Surface-mounting Terminals | package quantity | | | | |
| | 1a (SPST-NO) | 20 V | 4 A | 8 A | G3VM-21BR | G3VM-21ER | - | G3VM-21ER(TR) | | | | | |
| | | 40 V | 3.5 A | 7 A | G3VM-41BR | G3VM-41ER | | G3VM-41ER(TR) | | | | | |
| DIP6 | | | | | | NO) 60 V | 2.5 A – | | G3VM-61BR | G3VM-61ER | 50 pcs. | G3VM-61ER(TR) | 1,500 pcs. |
| | | | | 60 V | 3 A | 6 A | G3VM-61BR1 | G3VM-61ER1 | | G3VM-61ER1(TR) | | | |
| | | 100 V | 2 A | 4 A | G3VM-101BR | G3VM-101ER | | G3VM-101ER(TR) | | | | | |

* The AC peak and DC value are given for the load voltage and continuous load current.

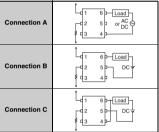
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | ı | Symbol | G3VM-21BR G3VM-21ER | G3VM-41BR G3VM-41ER | G3VM-61BR G3VM-61ER | G3VM-61BR1 G3VM-61ER1 | G3VM-101BR G3VM-101ER | Unit | Measurement conditions |
|---------|----------------------------|------------------|--------|------------------------|------------------------|------------------------|--------------------------|--------------------------|------------------|------------------------|
| | LED forward cu | rrent | lF | | | 30 | | • | mA | |
| | Repetitive peak current | LED forward | IFP | | | | Α | 100 μs pulses, 100 pps | | |
| tion of | LED forward cu | rrent reduction | ΔIF/°C | | | -0.3 | | | mA/°C | Ta ≥ 25°C |
| | LED reverse vol | Itage | VR | | | 5 | | | V | |
| | Connection tem | perature | TJ | | | 125 | | | °C | |
| | Load voltage (A | C peak/DC) | Voff | 20 | 40 | 6 | 60 | 100 | V | |
| | | Connection A | | | 0.5 | 2.5 | | | | Connection A: |
| | Continuous load current | Connection B | lo | 4 | 3.5 | | 3 | 2 | Α | AC peak/DC |
| 4 | | Connection C | | 8 | 7 | _ | 6 | 4 | | Connection B and C: DC |
| 4 | | Connection A | | -40 | -35 | -22 | -30 | -20 | | |
| (| ON current reduction rate | Connection B | ∆lo/°C | -40 | -33 | | -30 | -20 | mA/°C | Ta ≥ 25°C |
| | reduction rate | Connection C | Ī | -80 | -70 | _ | -60 | -40 | | |
| | Pulse ON currer | nt | lop | 12 | 10.5 | 7.5 | 9 | 6 | Α | t=100 ms, Duty=1/10 |
| | Connection temperature TJ | | TJ | | | 125 | | | °C | |
| [| Dielectric strength b | V _{I-O} | | | 2,500 | | | Vrms | AC for 1 min | |
| F | Ambient operating t | Ta | -40 to | +85 | -20 to +85 | -40 to | +85 | °C | With no icing or | |
| F | Ambient storage ter | mperature | Tstg | -55 to | +125 | -40 to +125 | -55 to | +125 | °C | condensation |
| 5 | Soldering temperate | ıre | - | | | 260 | | | °C | 10 s |

^{*} The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

Connection Diagram



Note: Only connection A can be used for the G3VM-61BR/ER.

■Electrical Characteristics (Ta = 25°C)

| | Ite | m | Symbol | | | | G3VM-61BR G3VM-61ER | | | Unit | Measurement conditions | |
|--------|--|--------------------------------------|---------|---------|---------|-----|------------------------|-------|---|--------------|---|--|
| | | | | Minimum | | | 1.18 | | | | | |
| | LED forward | i voltage | VF | Typical | | | 1.33 | | | ٧ | IF=10 mA | |
| | | | | Maximum | | | 1.48 | | | | | |
| | Reverse cui | rent | IR | Maximum | | | 10 | | | μА | V _R =5 V | |
| bnt | Capacitance between CT Typical terminals Typical | | Typical | | | 70 | | | pF | V=0, f=1 MHz | | |
| 드 | | | ler | Typical | 0. | 5 | 1 | 0. | .5 | mA | Io=1 A | |
| | current | | | | | | 3 | | | IIIA | 10-1 A | |
| | Release LE current | D forward | IFC | Minimum | | | 0.1 | | | mA | Ioff=10 μA | |
| | | Connection A | | Typical | 20 | 30 | 65 | 40 | 100 | | G3VM-21BR/21ER/41BR/41ER/ | |
| | Maximum | Connection A | | Maximum | 50 | 60 | 100 | 70 | 200 | | 61BR1/61ER1/101BR/101ER: | |
| | resistance | Connection B | Ron | Typical | 10 | 15 | | 20 | 50 | mO | Ir=5 mA, Io=2 A (Connection A and B), | |
| Output | with output ON | Connection C | | Typical | 5 | 8 | _ | 10 | 25 | | Io=4 A (Connection C), t<1 s G3VM-61BR/ER : IF=10 mA, t=10 ms, Io=2 A | |
| | | rrent leakage when the ILEAK Typical | | Typical | - 0.001 | | | - | | цΑ | Vorr=Load voltage ratings | |
| | relay is oper | 1 | ILLAK | Maximum | 1 | | 0.01 | 1 | 1 | μ | Voi 1 = Edad Voitage Tallings | |
| | Capacitance terminals | between | Coff | Typical | 10 | 00 | 400 | 10 | 00 | pF | V=0, f=1 MHz | |
| | pacitance betv minals | veen I/O | Cı-o | Typical | | | 0.8 | | | pF | f=1 MHz, Vs=0 V | |
| Ins | sulation resist | ance between | Ri-o | Minimum | | | 1000 | | | ΜΩ | Vi-o=500 VDC, RoH≤60% | |
| I/C | terminals | | ri-o | Typical | | 108 | | IVISZ | VI-0=300 VDC, NOH≤60% | | | |
| Tu | Typical ton | | 2.5 | 2 | 1 | 2 | 2 | | G3VM-21BR/21ER/41BR/41ER/ 61BR1/61ER1/101BR/101ER: | | | |
| | | | | Maximum | 5 | 5 | 1.5 | ŧ | 5 | ms | IF=5 mA, RL=200 Ω , | |
| Tu | Turn-OFF time | | tore | Typical | 0. | 1 | 0.2 | 0 | .1 | 0 | G3VM-61BR/ER : | |
| | | | | Maximum | 1 | l | 0.4 | 1 | 1 | | IF=10 mA, RL=200 Ω, VDD=20 V * | |

* Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

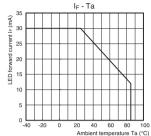
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

| Item | Symbol | | G3VM-21BR G3VM-21ER | G3VM-41BR G3VM-41ER | G3VM-61BR G3VM-61ER | G3VM-61BR1 G3VM-61ER1 | G3VM-101BR G3VM-101ER | Unit |
|--------------------------------------|------------------------------|---------|------------------------|------------------------|------------------------|--------------------------|--------------------------|------|
| Load voltage (AC peak/DC) | VDD | Maximum | 16 | 16 32 | | 48 | | V |
| | | Minimum | | 5 | 10 | | 5 | |
| Operating LED forward current | lF | Typical | 10 | | - | 1 | 0 | mA |
| | | Maximum | 25 | | 20 | | 25 | |
| Continuous load current (AC peak/DC) | lo | Maximum | 4 | 3.5 | 2.5 | 3 | 2 | Α |
| Ambient operating temperature | ating temperature Ta Minimus | | | -20 | | | | °C |
| Ambient operating temperature | ı a | Maximum | 6 | i5 | 60 65 | | 5 | |

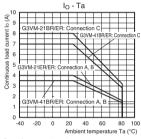
■Spacing and Insulation

| Item | Minimum | Unit |
|------------------------------|---------|------|
| Creepage distances | 7.0 | |
| Clearance distances | 7.0 | mm |
| Internal isolation thickness | 0.4 | |

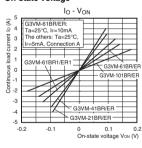
● LED forward current vs. Ambient temperature G3VM-21BR/21ER/41BR/41ER/ 61BR1/61ER1/101BR/101ER



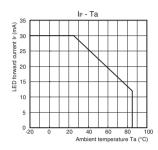
Continuous load current vs. Ambient temperature G3VM-21BR/21ER/41BR/41ER



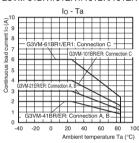
Continuous load current vs. On-state voltage



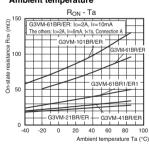
G3VM-61BR/61ER



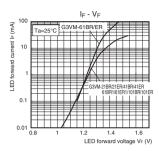
G3VM-61BR1/61ER1/101BR/101ER



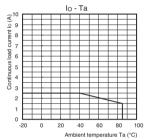
On-state resistance vs. Ambient temperature



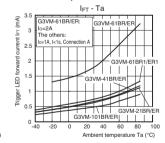
LED forward current vs. LED forward voltage



G3VM-61BR/61ER

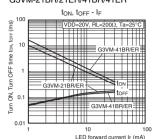


Trigger LED forward current vs. Ambient temperature

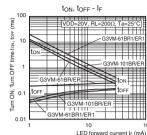


● Turn ON, Turn OFF time vs. LED forward current G3VM-21BR/21ER/41BR/41ER

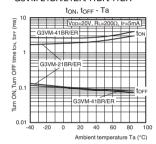
G3VM−□BR□/□ER



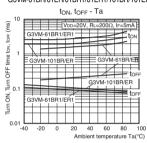
G3VM-61BB/61EB/61BB1/61EB1/101BB/101EB



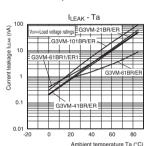
● Turn ON, Turn OFF time vs. Ambient temperature G3VM-21BR/21ER/41BR/41ER



G3VM-61BR/61ER/61BR1/61ER1/101BR/101ER



Current leakage vs. Ambient temperature



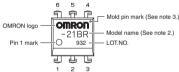
■Appearance / Terminal Arrangement / Internal Connections

Appearance

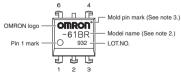
DIP (Dual Inline Package)

DIP 6-pin

G3VM-21BR/ER, -41BR/ER, -61BR1/ER1, -101BR/ER



Special DIP 6-pin * G3VM-61BR/ER



●Terminal Arrangement/Internal Connections (Top View)

G3VM-21BR/ER. -41BR/ER. -61BR1/ER1. -101BR/ER



G3VM-61BR/ER



Note: 1. The actual product is marked differently from the image shown here.

Note: 2. "G3VM" does not appear in the model number on the Relay.

Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

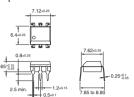
* The external dimensions of the standard DIP 6-pin are the same, but the number of terminals is different.

■Dimensions (Unit: mm)

G3VM-21BR/41BR/61BR1/101BR

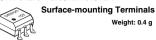


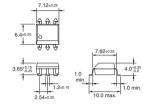
PCB Terminals Weight: 0.4 g



2 E4+0 25

G3VM-21ER/41ER/61ER1/101ER





PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions (Recommended Value, Top View)



Note: The actual product is marked differently from the image shown here.



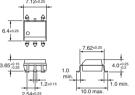
PCB Terminals Weight: 0.4 g



G3VM-61ER



Surface-mounting Terminals Weight: 0.4 g



PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions (Recommended Value, Top View)



7 85 to 8.80 Note: The actual product is marked differently from the image shown here.

■Approved Standards

0.5+0.1 - 2.54±0.25

UL recognized 🔊

| Approved Standards | Contact form | File No. | | |
|--------------------|--------------|----------|--|--|
| UL (recognized) | 1a (SPST-NO) | E80555 | | |

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

MOS FET Relays DIP 8-pin, High-Current and Low-ON-resistance Type

The highest class load current of MOS FET Relays realized with DIP8 package

- Contact form: 1a (SPST-NO)
- Load voltage: 60 V, 100 V, 200 V, 400 V, or 600 V
- 60-V Relay: Continuous load current of 5 A (10 A) max. *
- 100-V Relay: Continuous load current of 3 A (6 A) max. *
- 200-V Relay: Continuous load current of 1.5 A (3 A) max. *
- 400-V Relay: Continuous load current of 0.4 A (0.8 A) max. *
- 600-V Relay: Continuous load current of 0.6 A (1.2 A) max. *
- * Values in parentheses are for connection C.



Note: The actual product is marked differently from the image shown here.

RoHS Compliant

■Application Examples

Communication equipment

· Industrial equipment

- Test & Measurement equipment
- Power circuit
- Security equipment

■Package (Unit: mm, Average)

DIP 8-pin PCB Terminals



Surface-mounting Terminals



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-1 2 3 4 5

- 1. Load Voltage 2. Contact form
- 6: 60 V 1:1a (SPST-NO)
- 10:100 V 20:200 V
- 40:400 V
- 60:600 V
- 4. Additional functions
- R: Low ON resistance

- 3. Package
- C: DIP 8-pin with PCB terminals
- F: DIP 8-pin with surface-mounting terminals
- 5. Other informations
- When specifications overlap, serial code is added in the recorded order.

■Ordering Information

| | | | | | Stick packaging | | Tape packaging | | |
|----------|-----------------|------------------------------|-------------------------|---------------|-------------------------------|---------------------|-------------------------------|---------------------|--|
| Package | Contact | Load voltage (peak value) | Continuous load current | | Model | Minimum | Model | Minimum | |
| 1 dekage | form | * | (peak value) * | PCB Terminals | Surface-mounting Terminals | package quantity | Surface-mounting Terminals | package quantity | |
| | | 60 V | 5 A | G3VM-61CR1 | G3VM-61FR1 | | G3VM-61FR1(TR05) | 500 pcs. | |
| | | 100 V | 3 A | G3VM-101CR | G3VM-101FR | | G3VM-101FR(TR05) | | |
| DIP8 | 1a (SPST-NO) | 200 V | 1.5 A | G3VM-201CR | G3VM-201FR | 50 pcs. | G3VM-201FR(TR05) | | |
| | (0. 0. 110) | 400 V | 0.4 A | G3VM-401CR | G3VM-401FR | | G3VM-401FR(TR05) | | |
| | | 600 V | 0.6 A | G3VM-601CR | G3VM-601FR | | G3VM-601FR(TR05) | | |

^{*} The AC peak and DC value are given for the load voltage and continuous load current

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | | Symbol | G3VM-61CR1 G3VM-61FR1 | G3VM-101CR G3VM-101FR | G3VM-201CR G3VM-201FR | G3VM-401CR G3VM-401FR | G3VM-601CR G3VM-601FR | Unit | Measurement conditions | |
|--------|----------------------------|-----------------|--------|-----------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------|------------------------|--|
| | LED forward curre | ent | lF | 30 | | | | | | | |
| | Repetitive peak LED | forward current | IFP | | | 1 | | | Α | 100 μs pulses, 100 pps | |
| Input | LED forward current | reduction rate | ΔIF/°C | | | -0.3 | | | mA/°C | Ta ≥ 25°C | |
| = | LED reverse volta | ge | VR | | | 5 | | | V | | |
| | Connection temper | erature | TJ | | | 125 | | | °C | | |
| | Load voltage (AC | peak/DC) | Voff | 60 | 100 | 200 | 400 | 600 | V | | |
| | | Connection A | | 5 | 3 | 1.5 | 0.4 | 0.6 | | Connection A: | |
| | Continuous load current | Connection B | lo | 5 | 3 | 1.5 | 0.4 | 0.6 | Α | AC peak/DC | |
| = | | Connection C | ĺ | 10 | 6 | 3 | 0.8 | 1.2 | | Connection B and C: DC | |
| Jutput | ou . | Connection A | | -50 | -30 | -15 | -4 | -6 | | Ta ≥ 25°C | |
| ō | ON current reduction rate | Connection B | ∆lo/°C | -50 | -30 | -15 | -4 | -6 | mA/°C | | |
| | reduction rate | Connection C | | -100 | -60 | -30 | -8 | -12 | | | |
| | Pulse ON current | | lop | 15 | 9 | 4.5 | 1.2 | 1.8 | Α | t=100 ms, Duty=1/10 | |
| | Connection temper | erature | TJ | | | 125 | | | °C | | |
| Di | electric strength bet | tween I/O * | VI-O | 2,500 | | | | | | AC for 1 min | |
| Ar | nbient operating ter | nperature | Ta | -40 to +85 -40 to +110 -40 to +85 | | | | | °C | With no icing or | |
| Ar | nbient storage temp | erature | Tstg | -55 to +125 | | | | | | condensation | |
| Sc | Idering temperature | 9 | - | | | 260 | | | °C | 10 s | |

^{*} The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

Connection Diagram

| Connection A | 1 8 LOAD 0 2 7 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
|--------------|--|
| Connection B | 1 8 LOAD 1 2 7 1 3 6 DO 1 |
| Connection C | 2 7 DC DC 4 5 |

■Electrical Characteristics (Ta = 25°C)

| | Ite | n | Symbol | | | | G3VM-201CR | | | Unit | Measurement conditions | |
|--------|--|---------------------|--------|--------------------|---------------|------------|--------------------------|------------|------------|------|---|--|
| | | | | Minimum | G3VM-61FR1 | G3VM-101FR | G3VM-201FR 1.5 | G3VM-401FR | G3VM-601FR | | | |
| | I ED forwar | LED forward voltage | | Typical | | | 1.64 | | | v | IF=10 mA | |
| | LLD IOIWa | ia voltage | VF | Maximum | | | 1.8 | | | | IF-10 IIIA | |
| | Reverse cu | ırrent | IR | Maximum | 10 | | | | | | V _R =5 V | |
| | Capacitano | e between | Ст | Typical | | | | | | μA | | |
| | terminals | terminals | | | 70 | | | | | pF | V=0, f=1MHz | |
| Input | Trigger LE | D forward | lft | Typical | 0.28 | 0.3 | 0.3 | 0.2 | 0.23 | mA | G3VM-61CR1/FR1 : Io=1 A G3VM-101CR/FR : Io=1 A G3VM-201CR/FR : Io=1 A | |
| | current | | | Maximum | 5 | 5 | 5 | 1 | 5 | | G3VM-401CR/FR: lo=0.4 A G3VM-601CR/FR: lo=0.6 A | |
| | Release LED forward current | | IFC | Minimum | | | 0.01 | | | mA | G3VM-61CR1/FR1 : loff=1 μA G3VM-101CR/FR : loff=1 μA G3VM-201CR/FR : loff=1 μA | |
| | | | | Typical | 0.19 | | - | 0.19 | 0.17 | IIIA | G3VM-401CR/FR : loFF=10 µA G3VM-601CR/FR : loFF=1 µA | |
| | | Connection | | Typical | 0.022 | 0.06 | 0.25 | 3 | 1.3 | | G3VM-61CR1/FR1: lo=1 A, IF=5 mA, t < 1 s G3VM-101CR/FR: lo=1 A, IF=5 mA, t < 1 s G3VM-201CR/FR: lo=1 A, IF=5 mA, t < 1 s | |
| | | Α | | Maximum | 0.05 | 0.15 | 0.5 | 5 | 2 | | G3VM-401CR/FR: lo=0.4 A, IF=2 mA, t < 1 s G3VM-601CR/FR: lo=0.6 A, IF=5 mA, t < 1 s | |
| Output | Maximum resistance with output ON | Connection B | Ron | Maximum | 0.025 | 0.075 | 0.25 | 2.5 | 1 | Ω | G3VM-61CR1/FR1 : lo=1 A, IF=2 mA, t < 1 s G3VM-101CR/FR : lo=1 A, IF=5 mA, t < 1 s G3VM-201CR/FR : lo=1 A, IF=5 mA, t < 1 s G3VM-401CR/FR : IO=0.4 A, IF=2 mA, t < 1 s G3VM-601CR/FR : IO=0.6 A, IF=2 mA, t < 1 s | |
| nO | | Connection C | | Maximum | 0.013 | 0.075 | 0.25 | 1.3 | 0.5 | | G3VM-61CR1/FR1: IO=1 A, IF=2 mA, t < 1 s G3VM-101CR/FR: Io=1 A, IF=5 mA, t < 1 s G3VM-201CR/FR: Io=1 A, IF=5 mA, t < 1 s G3VM-401CR/FR: IO=0.8 A, IF=2 mA, t < 1 s G3VM-601CR/FR: IO=1.2 A, IF=2 mA, t < 1 s | |
| | | kage when | ILEAK | Typical | 0.01 | 0.02 | 0.1 | 0.001 | 0.05 | μА | Vorr=Load Voltage Ratings | |
| | the relay is | • | ILLAN | Maximum | 10 | 1 | 1 | 1 | 10 | μΑ | Voit = Load Voitage Hairings | |
| | terminals | e between | Coff | Typical | 850 | 720 | 400 | 410 | 4,300 | pF | V=0, f=1 MHz | |
| | pacitance b minals | etween I/O | CI-O | Typical | | | 0.8 | | | pF | f=1 MHz, Vs=0 V | |
| | sulation resis | | Ri-o | Minimum | | | 1,000 | | | МΩ | Vi-o=500 VDC. RoH≤60% | |
| be | tween I/O te | rminals | | Typical | | | 108 | | | | | |
| Tu | rn-ON time | | ton | Typical | 2.5 | 1.5 | 0.25 | 0.22 | 0.8 | | | |
| | | | | Maximum | 5 1 3 | | | | | ms | IF =5 mA, RL =200 Ω, VDD=20 V * | |
| Tu | Turn-OFF time | | toff | Typical Maximum | 0.1 0.08 0.07 | | | | | | | |
| | + T ON 1T OFF | | | IVIdxiMUM | | | | | | | | |

* Turn-ON and Turn-OFF Times





■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

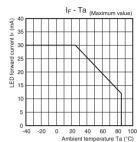
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

| Item | Symbol | | G3VM-61CR1 G3VM-61FR1 | G3VM-101CR G3VM-101FR | G3VM-201CR G3VM-201FR | G3VM-401CR G3VM-401FR | G3VM-601CR G3VM-601FR | Unit | | |
|--------------------------------------|--------|---------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|------|--|--|
| Load voltage (AC peak/DC) | VDD | Maximum | 48 | 80 | 160 | 320 | 480 | V | | |
| Operating LED forward current | lF | Typical | 5 | 5 | 5 | 2 | 5 | mA | | |
| Operating LED forward current | | Maximum | | 25 | | | | | | |
| Continuous load current (AC peak/DC) | lo | Maximum | 5 | 3 | 1.5 | 0.4 | 0.6 | Α | | |
| Ambient operating temperature | Та | Minimum | -40 | | | | | | | |
| Ambient operating temperature | | Maximum | | 85 | | | | | | |

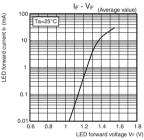
■Spacing and Insulation

| Item | Minimum | Unit |
|------------------------------|---------|------|
| Creepage distances | 7.0 | |
| Clearance distances | 7.0 | mm |
| Internal isolation thickness | 0.4 | |

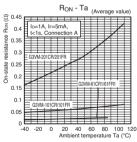
LED forward current vs. Ambient temperature



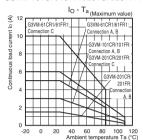
● LED forward current vs. LED forward voltage



On-state resistance vs.
 Ambient temperature
 G3VM-61CR1/61FR1
 G3VM-101CR/101FR/201CR/201FR

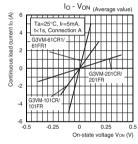


Continuous load current vs. Ambient temperature G3VM-61CR1/61FR1 G3VM-101CR/101FR/201CR/201FR

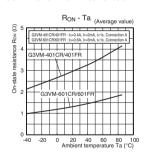


Continuous load current vs. On-state voltage G3VM-61CR1/61FR1

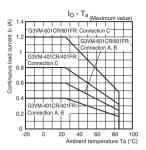




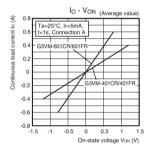
G3VM-401CR/401FR/601CR/601FR



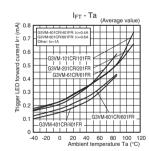
G3VM-401CR/401FR/601CR/601FR



G3VM-401CR/401FR/601CR/601FR



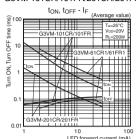
Trigger LED forward current vs. Ambient temperature



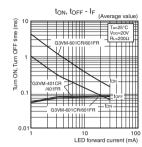
● Turn ON, Turn OFF time vs. LED forward current

G3VM-61CR1/61FR1 G3VM-101CR/101FR/201CR/201FR

G3VM-□CR□/[

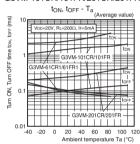


G3VM-401CR/401FR/601CR/601FR

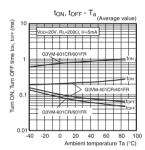


● Turn ON, Turn OFF time vs. Ambient temperature

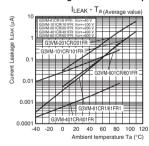
G3VM-61CR1/61FR1 G3VM-101CR/101FR/201CR/201FR



G3VM-401CR/401FR/601CR/601FR



● Current leakage vs.Ambient temperature

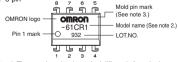


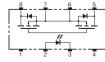
■Appearance / Terminal Arrangement / Internal Connections

Appearance

●Terminal Arrangement/Internal Connections (Top View)

DIP (Dual Inline Package) DIP 8-pin





Note: 1. The actual product is marked differently from the image shown here.

Note: 2. "G3VM" does not appear in the model number on the Relay.

Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

■Dimensions (Unit: mm)

DIP 8-pin



PCB Terminals Weight: 0.54 g



3.65+0.15

Surface-mounting Terminals Weight: 0.54 g

4.0+0.2

Terminals PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



+9.66°0.25 +AAAA

Note: The actual product is marked differently from the image shown here.

■Approved Standards

-2.54±0.25

UL recognized 💫

| Model | Approved Standards | Contact form | File No. | | |
|--------------------------|--------------------|--------------|----------|--|--|
| G3VM-61CR1 G3VM-61FR1 | | | | | |
| G3VM-101CR G3VM-101FR | | | | | |
| G3VM-201CR G3VM-201FR | UL (recognized) | 1a (SPST-NO) | E80555 | | |
| G3VM-401CR G3VM-401FR | | | | | |
| G3VM-601CR G3VM-601FR | | | | | |

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

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G3VM-41GR8/61GR_/61

MOS FET Relays SOP 4-pin, High-current and Low-ON-resistance Type

MOS FET Relays in SOP4-pin that featuring the low ON resistance and high switching capacity as a mechanical relay.

. Load voltage: 40 V or 60 V

• 40-V Relay: Continuous load current of 1 A max.

• 60-V Relay: Continuous load current of 1.7 A max.



Note: The actual product is marked differently from the image shown here.

RoHS Compliant

■Application Examples

· Semiconductor test equipment

- Test & Measurement equipment Communication equipment
- Security equipment Industrial equipment
- Power circuit

■Model Number Legend (Unit: mm, Average)

SOP 4-pin

■Package



Note: The actual product is marked differently from the image shown here.

G3VM-1 2 3 4 5

- 1. Load Voltage 2. Contact form
- 4:40 V 1:1a (SPST-NO)
- 6:60 V

- 3. Package G: SOP 4-pin
- - V: Special SOP 4-pin
- 4. Additional function R: Low ON resistance
- 5. Other informations

Amusement equipment

When specifications overlap, serial code is added in the recorded order.

■Ordering Information

| | Contact | Terminals | Load voltage | Continuous load | Stick pack | kaging | Tape packaging | | |
|---------|-----------------|-------------------------------|----------------|---------------------------|---------------|-----------------------------|------------------|-----------------------------|--|
| Package | form | | (peak value) * | current (peak value) * | Model | Minimum package quantity | Model | Minimum package quantity | |
| | | | 40 V | 1000 mA | G3VM-41GR8 | 100 pcs. | G3VM-41GR8(TR) | 2,500 pcs. | |
| | | | 60 V | 1000 IIIA | G3VM-61GR1 | 100 pcs. | G3VM-61GR1(TR) | 2,500 pcs. | |
| SOP4 | 1a (SPST-NO) | Surface-mounting Terminals | | 1400 mA | G3VM-61VR | 125 pcs. | G3VM-61VR(TR05) | 500 pcs. | |
| | (01 01 110) | reminas | | | G3 VIVI-01 VI | 125 pcs. | G3VM-61VR(TR) | 3,000 pcs. | |
| | | | | 1700 mA | G3VM-61GR2 | 100 pcs. | G3VM-61GR2(TR05) | 2,500 pcs. | |

* The AC peak and DC value are given for the load voltage and continuous load current.

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" or "(TR05)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | Symbol | G3VM-41GR8 | G3VM-61GR1 | G3VM-61VR | G3VM-61GR2 | Unit | Measurement conditions |
|--------|---|--------|-----------------------|------------|------------------|------------|-------|---|
| | LED forward current | lF | 30 | 30 5 | | 0 30 | | |
| Input | LED forward current reduction rate | ΔIF/°C | -0.3 | -0.3 -0 | | -0.3 | mA/°C | Ta ≥ 25°C |
| ᆸ | LED reverse voltage | VR | į | 5 | 6 | 5 | V | |
| | Connection temperature | TJ | | 12 | 25 | | °C | |
| | Load voltage (AC peak/DC) | Voff | 40 | | 60 | | V | |
| ¥ | Continuous load current (AC peak/DC) | lo | 10 | 1000 | | 1700 | mA | |
| Output | ON current reduction rate | Δlo/°C | -10 | 3.3 | -14 | -17 | mA/°C | G3VM-41GR8/61GR1: Ta ≥ 50°C G3VM-61VR/61GR2: Ta ≥ 25°C |
| | Pulse ON current | lop | 2 | 3 | 4.2 | 5 | Α | t=100 ms, Duty=1/10 |
| | Connection temperature | TJ | | 1: | 25 | | °C | |
| Die | electric strength between I/O * | VI-O | 15 | 00 | 3750 | 1500 | Vrms | AC for 1 min |
| An | nbient operating temperature | Ta | -40 to +85 -20 to +85 | | -40 to +110 | -40 to +85 | °C | With no icing or condensation |
| An | Ambient storage temperature | | -55 to +125 -40 to | | +125 -55 to +125 | | °C | with no long of condensation |
| So | Idering temperature | - | 260 | | | | | 10 s |

^{*} The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

| | Item | Symbol | | G3VM-41GR8 | G3VM-61GR1 | G3VM-61VR | G3VM-61GR2 | Unit | Measurement conditions |
|--------|-----------------------------------|--------|---------|------------|------------|----------------|------------|-------|--|
| | | | Minimum | 1.18 | 1.0 | 1.1 | 1.18 | | |
| | LED forward voltage | VF | Typical | 1.33 | 1.15 | 1.27 | 1.33 | V | IF=10 mA |
| | | | Maximum | 1.48 | 1.3 | 1.4 | 1.48 | | |
| = | Reverse current | lr | Maximum | | 1 | 0 | • | μА | VR=5 V |
| Input | Capacitance between terminals | Ст | Typical | 70 | 15 | 7 | 0 | pF | V=0, f=1 MHz |
| | | | Typical | | 1 | | 0.6 | mA | G3VM-41GR8/61GR1/61GR2: |
| | Trigger LED forward current | IFT | Maximum | 3 | | | | | lo=100 mA G3VM-61VR: lo=1400 mA |
| | Release LED forward current | IFC | Minimum | | 0. | .1 | | mA | Ioff=100 μA |
| | Maximum resistance with output | Bon | Typical | 0.1 | 0.25 | 0.13 | 0.08 | Ω | G3VM-61GR2/61VR : IF=5mA, Io= Continuous load current ratings, t<1s |
| Output | ON | HON | Maximum | 0.13 | 0.7 | 0.25 | 0.13 | 12 | G3VM-41GR8/61GR1: IF=5mA, Io= Continuous load current ratings |
| | Current leakage when the relay is | | Typical | - | 0.2 | 2 | 1 | | G3VM-41GR8: Voff=30 V |
| | open | ILEAK | Maximum | 1 | 100 | 1000 | 10 | nA | G3VM-61GR1/61VR/61GR2: Voff=60 V |
| | Capacitance between terminals | Coff | Typical | 300 | 90 | 100 | 250 | pF | V=0, f=1 MHz |
| С | apacitance between I/O terminals | Cı-o | Typical | | 0. | .8 | • | pF | f=1 MHz, Vs=0 V |
| In | sulation resistance between I/O | Rı-o | Minimum | | 10 | 00 | | МΩ | Vi-o=500 VDC, RoH≤60% |
| te | rminals | 111-0 | Typical | | 10 | D ⁸ | | 10122 | VI-0=300 VDC, 11011≤00 /6 |
| т. | ırn-ON time | ton | Typical | 1.2 | 1.4 | 2 | 0.7 | | |
| | an or anc | ION | Maximum | 3 | | | | | IF=5 mA, RL=200 Ω, |
| Т | urn-OFF time | torr | Typical | 0.2 | 0.6 | 0.1 | 0.1 ms | | VDD=20 V * |
| | an or r une | TOFF | Maximum | 0.5 | 1 | 1 | 0.5 | | |

* Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

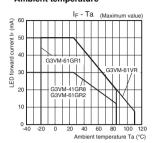
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

| Item | Symbol | | G3VM-41GR8 | G3VM-61GR1 | G3VM-61VR | G3VM-61GR2 | Unit | | |
|--------------------------------------|---------------------------|---------|------------|------------|-----------|------------|------|--|--|
| Load voltage (AC peak/DC) | VDD | Maximum | 32 | | 48 | V | | | |
| 0 " 150" 1 | | Maximum | | 5 | | | | | |
| Operating LED forward current | LED forward IF Typical 10 | | 0 | 7.5 | 10 | | | | |
| Current | | Maximum | 2 | 0 | 2 | mA | | | |
| Continuous load current (AC peak/DC) | lo | Maximum | 1000 | | 1400 | 1300 | | | |
| Ambient operating | Ta | Minimum | -20 | | | | | | |
| temperature | 1d | Maximum | 6 | 0 | 100 | 65 | °C | | |

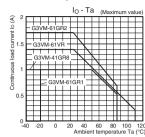
■Spacing and Insulation

| Item | G3VM-□GR□ | Unit | | |
|------------------------------|-----------|------|----|--|
| item | Mini | Onit | | |
| Creepage distances | 4.0 | 5.0 | | |
| Clearance distances | 4.0 | 5.0 | mm | |
| Internal isolation thickness | 0.1 | 0.2 | | |

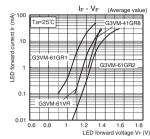
LED forward current vs. Ambient temperature



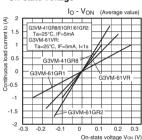
Continuous load current vs. Ambient temperature



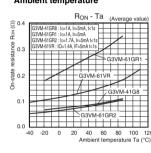
LED forward current vs. LED forward voltage



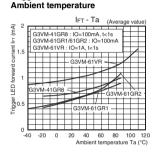
Continuous load current vs. On-state voltage



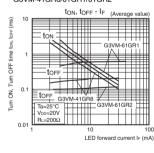
On-state resistance vs. Ambient temperature



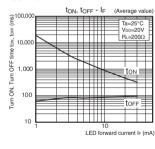
Trigger LED forward current vs.



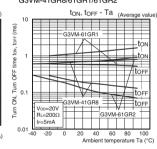
● Turn ON, Turn OFF time vs. LED forward current G3VM-41GR8/61GR1/61GR2



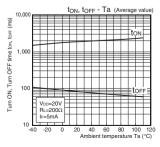
G3VM-61VR



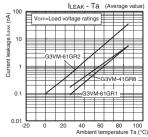
● Turn ON, Turn OFF time vs.
Ambient temperature
G3VM-41GR8/61GR1/61GR2



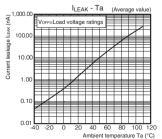
G3VM-61VR



Current leakage vs. Ambient temperature G3VM-41GR8/61GR1/61GR2



G3VM-61VR



Note: 1. The actual product is marked differently from the image shown here.

Note: 2. "G3VM" does not appear in the model number on the Relay.

Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark

●Terminal Arrangement/Internal Connections (Top View)



■Dimensions (Unit: mm)

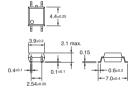
is from a pin on the mold.

SOP (Small Outline Package) SOP 4-pin



Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Becommended Value, Top View)



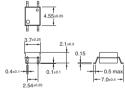
Note: The actual product is marked differently from the image shown here.

Special SOP 4-pin * (G3VM-61VR)



Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



* The external dimensions are different from those of the standard SOP 4-pin, but the mounting pad dimensions are the same **Note:** The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

| Model | Approved Standards | Contact form | File No. |
|---|--------------------|-----------------|----------|
| G3VM-41GR8 G3VM-61GR1 G3VM-61GR2 G3VM-61VR | UL (recognized) | 1a (SPST-NO) | E80555 |

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

/M-21HR/31HR/41HR/61HR/61HR1

MOS FET Relays SOP 6-pin, High-current and Low-ON-resistance Type

MOS FET Relays in SOP 6-pin packages that achieve the low ON resistance and high switching capacitance of a mechanical relav

Load voltage: 20 V, 30 V, 40 V, or 60 V

• 20-V Relay: Continuous load current of 2.5 A (5 A) max. *

• 30-V Relay: Continuous load current of 4 A (8 A) max. *

• 40-V Relay: Continuous load current of 2.5 A (5 A) max. *

• 60-V Relay: Continuous load current of 3.3 A (6.6 A) max. *

(Unit: mm, Average)

* Values in parentheses are for connection C.



Note: The actual product is marked differently from the image shown here.

· Amusement equipment

RoHS Compliant

■Package

SOP 6-pin

■Application Examples

- Semiconductor test equipment
- Communication equipment
- Test & Measurement equipment
- Security equipment
- Industrial equipment
- Power circuit

■Model Number Legend

G3VM-



Note: The actual product is marked differently from the image shown here.

1 2 3 4 5

1. Load Voltage 2. Contact form

1:1a (SPST-NO) 2 · 20 V

3:30 V

4. Additional functions 5. Other informations 4:40 V R: Low ON resistance 6:60 V

H: SOP 6-pin

3. Package

When specifications overlap, serial code is added in the recorded order.

■Ordering Information

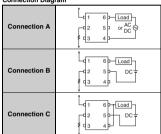
| | Contact | | Load voltage | Continuous load current (peak value) * | | Stick packaging | | Tape packaging | |
|---------|-----------------|-------------------------------|----------------|--|-----------------|-----------------|--------------------------------|------------------|--------------------------------|
| Package | form | Terminals | (peak value) * | Connection A, B | Connection C | Model | Minimum package quantity | Model | Minimum package quantity |
| | | | 20 V | 2.5 A | 5 A | G3VM-21HR | : | G3VM-21HR(TR) | 2,500 |
| | | | 30 V | 4 A | 8 A | G3VM-31HR | | G3VM-31HR(TR05) | 500 |
| SOP6 | 1a (SPST-NO) | Surface-mounting Terminals | 40 V | 2.5 A | 5 A | G3VM-41HR | 75 | G3VM-41HR(TR) | 2,500 |
| | (0. 0. 110) | Tommalo | 60 V | 2.3 A | 4.6 A | G3VM-61HR | | G3VM-61HR(TR) | 2,500 |
| | | | 00 V | 3.3 A | 6.6 A | G3VM-61HR1 | • | G3VM-61HR1(TR05) | 500 |

* The AC peak and DC value are given for the load voltage and continuous load current. Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

| | Iten | n | Symbol | G3VM-21HR | G3VM-31HR | G3VM-41HR | G3VM-61HR | G3VM-61HR1 | Unit | Measurement conditions |
|--------|----------------------------|------------------|------------------|-----------|-----------|-------------|-----------|------------------|-------|-----------------------------------|
| | LED forward cu | ırrent | lF | | | 30 | | | mA | |
| Input | LED forward cu | irrent reduction | ΔIF/°C | | | | mA/°C | Ta ≥ 25°C | | |
| = | LED reverse vo | ltage | VR | | | 5 | | | V | |
| | Connection ten | nperature | TJ | | | 125 | | | °C | |
| | Load voltage (A | AC peak/DC) | Voff | 20 | 30 | 40 | 6 | i0 | V | |
| | | Connection A | | 2500 | 4000 | 2500 | 2300 | 3300 | | Connection A: |
| | Continuous load current | Connection B | lo | 2500 | 4000 | 2300 | 2300 | 3300 | mA | AC peak/DC Connection B and C: |
| Ħ | | Connection C | | 5000 | 8000 | 5000 | 4600 | 6600 | | DC |
| Output | ON current | Connection A | Δlo/°C | -33.3 | -40 | -33.3 | -30.7 | -33 | | G3VM-31HR/61HR1: |
| | reduction rate | Connection B | | -55.5 | 40 | -55.5 | 00.7 | 00 | mA/°C | |
| | Toddollori rato | Connection C | | -66.7 | -80 | -66.7 | -61.3 | -66 | | Others: Ta ≥ 50°C |
| | Pulse ON curre | ent | lop | 7.5 | 12 | 7.5 | 7 | 10 | Α | t=100 ms, Duty=1/10 |
| | Connection ten | perature | TJ | | | 125 | • | | °C | |
| D | electric strength | between I/O * | V _{I-O} | | | 1500 | | | Vrms | AC for 1 min |
| A | mbient operating | temperature | Ta | | | | °C | With no icing or | | |
| A | mbient storage te | mperature | Tstg | | | -55 to +125 | | | °C | condensation |
| S | oldering temperat | ture | - | | | 260 | | | °C | 10 s |

^{*} The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

Connection Diagram



■Electrical Characteristics (Ta = 25°C)

| | Ite | m | Symbol | | G3VM-21HR | G3VM-31HR | G3VM-41HR | G3VM-61HF | G3VM-61HR1 | Unit | Measurement conditions |
|--------|-------------------------------|--------------------------|--------|---------|-----------|-----------|-----------|-----------|------------|-------|--|
| | | | | Minimum | | | 1.18 | | | | |
| | LED forward | voltage | VF | Typical | | | 1.33 | | | V | IF=10 mA |
| | | | | Maximum | | | 1.48 | | | | |
| Ħ | Reverse curre | | IR | Maximum | | | 10 | | | μА | VR=5 V |
| Input | Capacitance between terminals | | Ст | Typical | 70 | | | | | pF | V=0, f=1 MHz |
| | Trigger I ED f | orward current | IFT | Typical | - | 0.3 | 0 | .4 | 0.2 | mA | G3VM-61HR1 : lo=2000 mA |
| | | | | Maximum | 3 | | | | | ША | Others : Io=100 mA |
| | Release LED | forward current | IFC | Minimum | | | 0.1 | | | mA | Ioff=10 μA |
| | | Connection A | | | 0.02 | 0.02 | 0.03 | 0.04 | 0.03 | | G3VM-31HR: |
| | Maximum | Connection B | | Typical | 0.01 | 800.0 | 0.015 | 0.02 | 0.015 | | I _F =5 mA I _O =4 A (Connection A, B) |
| | resistance | Connection C | Ron | | 0.005 | 0.004 | 0.008 | 0.01 | 0.008 | Ω | lo=8 A (C connections), t<1s |
| | with output | with output Connection A | HUN | | 0.05 | 0.04 | 0.06 | 0.07 | 0.06 | 52 | Others: |
| Output | ON | Connection B | | Maximum | 0.025 | 0.02 | 0.03 | 0.04 | - | | I _F =5 mA I _O =2 A (Connection A. B) |
| O | | Connection C | | | - | 0.01 | | - | | | Io=4 A (C connections), t<1s |
| | Current leaka | Current leakage when the | | Typical | - | | | | | - 4 | Vorr= Load voltage ratings |
| | relay is open | - | ILEAK | Maximum | 10 | 1000 | 10 | | 20 | nA | VOFF= Load Voltage ratings |
| | Capacitance | between | COFF | Typical | 1000 | 1100 | 10 | 00 | 700 | pF | V=0, f=1 MHz |
| | terminals | | COFF | Maximum | | - | - | | 1500 | þΓ | V=0, I=1 IVIHZ |
| | pacitance betv minals | veen I/O | CI-O | Typical | | | 0.8 | | | pF | f=1 MHz, Vs=0 V |
| Ins | sulation resista | nce between I/O | Ri-o | Minimum | | | 1000 | | | ΜΩ | Vi-o=500 VDC, RoH≤60% |
| ter | terminals Turn-ON time | | 111-0 | Typical | | | 108 | | | 10122 | VI-0=300 VDO, 1101120076 |
| т., | | | 4 | Typical | 1.5 | 1.1 | 1. | .0 | 0.6 | | G3VM-21HR: |
| Iu | | | ton | Maximum | | 5 | | | | ms | I _F =5 mA, R _L =200 Ω, V _{DD} =10 V * |
| т | rn-OFF time | | tore | Typical | 0.1 | 0.1 | 0. | 15 | 0.2 | 1113 | Others : I _F =5 mA, R _L =200 Ω. |
| Tu | in-orr time | | IOFF | Maximum | | | 1 | | | | VDD=20 V * |

G3VM-21HR/31HR/41HR/61HR/61HR1

* Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

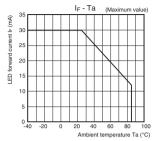
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

| Item | Symbol | | G3VM-21HR | G3VM-31HR | G3VM-41HR | G3VM-61HR | G3VM-61HR1 | Unit |
|--------------------------------------|--------|---------|-----------|-----------|-----------|-----------|------------|------|
| Load voltage (AC peak/DC) | VDD | Maximum | 20 | 24 | 40 | 60 | 48 | V |
| | | Minimum | | , | 5 | * | * | |
| Operating LED forward current | lF | Typical | 1 | 0 | 7 | .5 | 10 | mA |
| | | Maximum | 20 | 25 | 20 | | 25 | IIIA |
| Continuous load current (AC peak/DC) | lo | Maximum | 2000 | 4000 | 2000 | 1800 | 3300 | |
| Ambient operating temperature | Ta | Minimum | | | -20 | | | °C |
| Ambient operating temperature | ıa | Maximum | | | 65 | | | C |

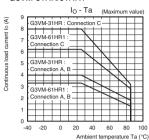
■Spacing and Insulation

| Item | Minimum | Unit |
|------------------------------|---------|------|
| Creepage distances | 4.0 | |
| Clearance distances | 4.0 | mm |
| Internal isolation thickness | 0.1 | |

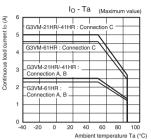
● LED forward current vs. Ambient temperature



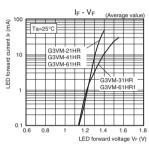
Continuous load current vs. Ambient temperature G3VM-31HR/61HR1



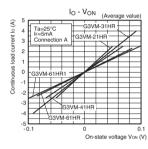
G3VM-21HR/41HR/61HR



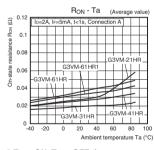
LED forward current vs. LED forward voltage



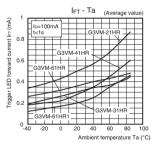
Continuous load current vs. On-state voltage



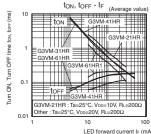
On-state resistance vs. Ambient temperature



Trigger LED forward current vs. Ambient temperature



Turn ON, Turn OFF time vs. LED forward current

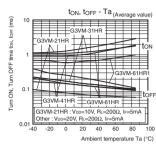


LED forward current IF (mA)

SOP

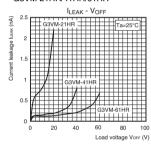
G3VM-21HR/31HR/41HR/61HR/61HR

● Turn ON, Turn OFF time vs. Ambient temperature



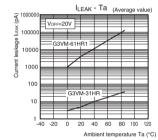
Current leakage vs. Load voltage

G3VM-21HR/41HR/61HR



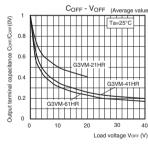
Current leakage vs. Ambient temperature G3VM-31HR/61HR1

G3VM-21HR/31HR/41HR/61HR/61HR1



Output terminal capacitance vs. Load voltage

G3VM-21HR/41HR/61HR



■Appearance / Terminal Arrangement / Internal Connections

Note: 1. The actual product is marked differently from the image shown here.

Note: 2. "G3VM" does not appear in the model number on the Relay.

Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark

Terminal Arrangement/Internal Connections (Top View)



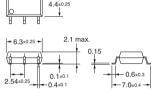
■Dimensions (Unit: mm)

is from a pin on the mold.

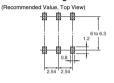


Surface-mounting Terminals

Weight: 0.13 g



Actual Mounting Pad Dimensions



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

| Approved Standards | Contact form | File No. | | |
|--------------------|--------------|----------|--|--|
| UL (recognized) | 1a (SPST-NO) | E80555 | | |

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

91

VM-81HR/101HR/101

MOS FET Relays SOP 6-pin, High-current and Low-ON-resistance Type

MOS FET Relays in SOP 6-pin packages that achieve the low ON resistance and high switching capacitance of a mechanical relay

- Load voltage: 80 V/100 V
- 80-V Relay: Continuous load current of 1.25 A (2.5 A) max. *
- 100-V Relay: Continuous load current of 2 A (4 A) max. *
- * Values in parentheses are for connection C.



Note: The actual product is marked differently from the image shown here.

RoHS Compliant

■Application Examples

- · Semiconductor test equipment
- Communication equipment
- Test & Measurement equipment
- Security equipment
- Industrial equipment Power circuit
- · Amusement equipment

■Package (Unit: mm, Average)

SOP 6-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-1 2 3 4 5

- 1. Load Voltage 2. Contact form
- 8:80 V 1:1a (SPST-NO)
- 10:100 V 4. Additional functions 5. Other informations R: Low ON resistance

3. Package

H: SOP 6-pin

When specifications overlap, serial code is added in the recorded order.

■Ordering Information

| | Contact | Terminals | Load voltage | Continuous load current (peak value) * | | Stick pack | aging | Tape packaging | |
|----------|-----------------|----------------|--------------------|--|-------------------|-------------|--------------------------------|-------------------|--------------------------------|
| Package | form | | (peak value) * | Connection A, B | Connection C | Model | Minimum package quantity | Model | Minimum package quantity |
| | | Surface- | 80 V | 1.25 A | 2.5 A | G3VM-81HR | | G3VM-81HR(TR) | 2,500 |
| SOP6 | 1a (SPST-NO) | mounting | 100 V | 1.4 A | 2.8 A | G3VM-101HR | 75 | G3VM-101HR(TR) | 2,500 |
| | (6. 6. 116) | Terminals | 100 V | 2.0 A | 4.0 A | G3VM-101HR1 | | G3VM-101HR1(TR05) | 500 |
| * The AC | peak and DC | value are give | n for the load vol | tage and continu | ious load current | | | | |

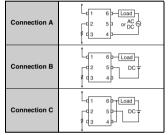
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | • | Symbol | G3VM-81HR | G3VM-101HR | G3VM-101HR1 | Unit | Measurement conditions |
|--------|-----------------------------------|--------------------|------------------|-------------|------------|-------------|-------|--|
| | | | | | | | | weasurement conditions |
| | LED forward curre | ent | lF | 50 | 3 | 0 | mA | |
| Input | LED forward curre | ent reduction rate | ΔIF/°C | -0.5 | -0 | .3 | mA/°C | Ta ≥ 25°C |
| ם | LED reverse voltage | | VR | 5 | | | V | |
| | Connection temper | erature | TJ | 125 | | | | |
| | Load voltage (AC | peak/DC) | Voff | 80 | 10 | 00 | V | |
| | | Connection A | | 1250 | 1400 | 2000 | mA | |
| | Continuous load current | Connection B | lo | 1230 | 1400 | | | Connection A: AC peak/DC Connection B and C: DC |
| Ħ | | Connection C | | 2500 | 2800 | 4000 | | |
| Output | au . | Connection A | | -12.5 | -18.7 | -20 | | 00/44 total D T : 5000 |
| U | ON current reduction rate | Connection B | Δlo/°C | -12.5 | -10.7 | -20 | mA/°C | G3VM-101HR : Ta ≥ 50°C Others : Ta > 25°C |
| | reduction rate | Connection C | 1 | -25.0 | -37.3 | -40 | | Onicis : Ta 225 C |
| | Pulse ON current | | lop | 3.75 | 4 | 6 | Α | t=100 ms, Duty=1/10 |
| | Connection temperature | | TJ | | 125 | | °C | |
| Di | Dielectric strength between I/O * | | V _{I-O} | | 1500 | | Vrms | AC for 1 min |
| Αı | Ambient operating temperature | | Ta | -20 to +85 | -40 to | +85 | °C | With no icing or condensation |
| Αı | Ambient storage temperature | | | -40 to +125 | -55 to | +125 | °C | With the leting of condensation |
| S | ldering temperature | 9 | - | | 260 | | °C | 10 s |

^{*} The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

Connection Diagram



G3VM-81HR/101HR/101HR1

■Electrical Characteristics (Ta = 25°C)

| | ı | tem | Symbol | | G3VM-81HR | G3VM-101HR | G3VM-101HR1 | Unit | Measurement conditions | |
|--------|-------------------|--------------------------------|---------|-------------|-----------|-----------------|-------------|-------|--|--|
| | | | | Minimum | 1.0 | 1. | 18 | | | |
| | LED forward | voltage | VF | Typical | 1.15 | 1.3 | 33 | ٧ | Ir=10 mA | |
| | | | | Maximum | 1.3 | 1.4 | 48 | - | | |
| | Reverse curr | ent | IR | Maximum | | 10 | | μА | V _R =5 V | |
| Input | Capacitance | between terminals | Ст | Typical | 15 | 7 | 0 | pF | V=0, f=1 MHz | |
| ī | | forward current | let | Typical | 2 | 0. | .4 | mA | G3VM-81HR : Io=1250 mA | |
| | Trigger EED | orward current | | Maximum | 5 | 5 | 3 | IIIA | Others : Io=100 mA | |
| | Release LED | forward current | IFC | Minimum | 0.2 | 0. | .1 | mA | Ioff=10 μA | |
| | | Connection A | | | 0.11 | 0.1 | 0.045 | | | |
| | Maximum | Connection B | | Typical | 0.06 | 0.05 | 0.022 | | G3VM-81HR : IF=5 mA, | |
| | resistance | Connection C | Ron | | 0.03 | 0.025 | 0.011 | Ω | Io= Continuous load current ratings G3VM-101HR/101HR1 : IF=5 mA. | |
| | with output ON | | TION | Maximum | 0.15 | 0.2 | 0.07 | | Io= Continuous load current ratings, | |
| | | Connection B | | | 0.08 | 0.1 | 0.035 | | t < 1 s | |
| Dutput | | Connection C | | | 0.04 | = | 0.018 | | | |
| Out | Current leaks | age when the relay | li fak | Typical | 1.2 | = | = | nA | G3VM-81HR : Voff=20 V, Ta=50°C | |
| | is open | | ILL/III | Maximum | 1.5 | 10 | 1000 | | Others: Voff= Load voltage ratings | |
| | Canacitance | between terminals | Coff | Typical | 460 | 1000 | 500 | pF | G3VM-81HR : V=0, f=100 MHz | |
| | Спринини | | | Maximum | 1000 | - | - | | Others : V=0, f=1 MHz | |
| С | apacitance bet | ween I/O terminals | Cı-o | Typical | | 0.8 | ļ. | pF | f=1 MHz, Vs=0 V | |
| In | sulation resista | llation resistance between I/O | | Minimum | | 1000 | | MΩ | Vi-o=500 VDC, RoH≤60% | |
| te | Turn-ON time | | Ri-o | Typical | | 10 ⁸ | | 10122 | VI-0=300 VDC, 1101120076 | |
| Т | | | ton | Typical | 2.0 | 1.0 | 1.1 | | | |
| | | | | Maximum 3.0 | | 5.0 | | ms | I _F =5 mA, R _L =200 Ω, V _{DD} =20 V * | |
| Т | urn-OFF time | | torr | Typical | 0.7 | 0.15 | 0.1 | 1113 | | |
| | Turn-OFF time | | 1011 | Maximum | | 1.0 | | | | |

Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

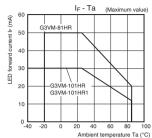
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

| Item | Symbol | | G3VM-81HR | G3VM-101HR | G3VM-101HR1 | Unit | | |
|--------------------------------------|--------|---------|-----------|------------|-------------|------|--|--|
| Load voltage (AC peak/DC) | VDD | Maximum | 64 | 100 | 80 | V | | |
| Operating LED forward current | | Minimum | | 5 | | | | |
| | lF | Typical | = | 7.5 | 10 | mA | | |
| | | Maximum | 30 | 20 | 25 | IIIA | | |
| Continuous load current (AC peak/DC) | lo | Maximum | 1250 | 1100 | 2000 | | | |
| A bi a a a a a a | - | Minimum | 25 | -20 | | °C | | |
| Ambient operating temperature | Та | Maximum | 60 | 6 | 35 | C | | |

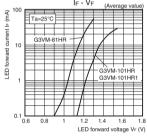
■Spacing and Insulation

| Item | Minimum | Unit |
|------------------------------|---------|------|
| Creepage distances | 4.0 | |
| Clearance distances | 4.0 | mm |
| Internal isolation thickness | 0.1 | |

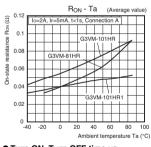
LED forward current vs. Ambient temperature



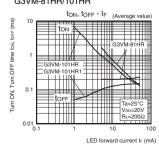
LED forward current vs. LED forward voltage



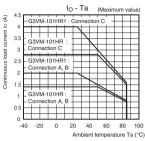
On-state resistance vs. Ambient temperature



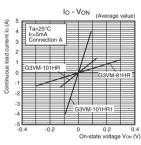
Turn ON, Turn OFF time vs. LED forward current G3VM-81HR/101HR



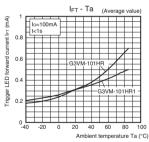
Continuous load current vs. Ambient temperature G3VM-101HR/101HR1



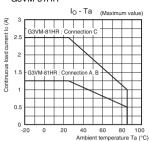
Continuous load current vs. On-state voltage



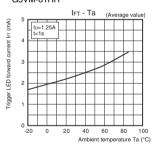
Trigger LED forward current vs. Ambient temperature G3VM-101HR/101HR1



G3VM-81HR



G3VM-81HR

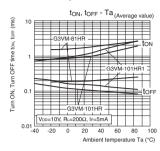


SOP

G3VM-81HR/101HR/101HR

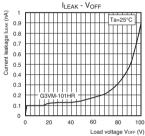
Turn ON, Turn OFF time vs. Ambient temperature

G3VM-81HR/101HR/101HR1

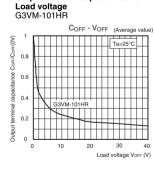


Current leakage vs. Load voltage

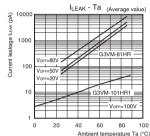
G3VM-101HR



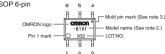
Output terminal capacitance vs.



Current leakage vs. Ambient temperature G3VM-81HR/101HR1



■Appearance / Terminal Arrangement / Internal Connections



Note: 1. The actual product is marked differently from the image shown here. Note: 2. "G3VM" does not appear in the model number on the Relay.

Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

Terminal Arrangement/Internal Connections (Top View)

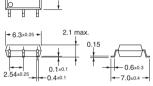


■Dimensions (Unit: mm)



Surface-mounting Terminals

Weight: 0.13 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)

Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized 🔊

| Approved Standards | Contact form | File No. |
|--------------------|--------------|----------|
| UL (recognized) | 1a (SPST-NO) | E80555 |

■Safety Precautions

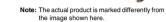
• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

NEW

MOS FET Relays S-VSON 4-pin, High-current and Low-ON-resistance Type

World's smallest * class New S-VSON Package

- Load voltage 30 V/60 V/100 V.
- 30-V Relay: Continuous load current of 1.5 A max.
- 60-V Relay: Continuous load current of 1.0 A max.
- 100-V Relay: Continuous load current of 0.65 A max.
- High Ambient operating temperature: -40°C to +110°C



* As of March 2018 Survey by OMBON

RoHS Compliant

■Application Examples

- Semiconductor test equipment
- Test & measurement equipment
- Communication equipment
- Data loggers

■Package (Unit:mm, Average)

CKage (Unit:mm, Average



Note: The actual product is marked differently from the image shown here.

■Model Number Legend



1. Load Voltage 3: 30 V 6: 60 V

10: 100 V

4. Additional functions
R: Low On-resistance

2. Contact form Package type
1: 1a (SPST-NO)
3. Package type
Q: S-VSON 4 pin

5. Other informations

When specifications overlap, serial code is added in the recorded order.

■Ordering Information

| | | | Continu | | Packing/Tape cut | | Packing/Tape & reel | | |
|--------------|--|-----------|-----------------------------|--------------|------------------|--------------------------------|---------------------|--------------------------------|--|
| Package type | Contact form | Terminals | Load voltage (peak value) * | load current | Model | Minimum package quantity | Model | Minimum package quantity | |
| | S-VSON4 1a Surface-mountin (SPST-NO) Terminals | | 0 (" | 30 V | 1,500 mA | G3VM-31QR | | G3VM-31QR (TR05) | |
| S-VSON4 | | | 60 V | 1,000 mA | G3VM-61QR2 | 1 pc. | G3VM-61QR2 (TR05) | 500 pcs. | |
| | (6. 6. 116) | | 100 V | 650 mA | G3VM-101QR1 | | G3VM-101QR1 (TR05) | | |

^{*} The AC peak and DC value are given for the load voltage and continuous load current.

Note: When ordering tape packing, add "(TR05)" (500 pcs/reel) to the model number.

Ask your OMRON representative for orders under 500 pcs. We can supply products with the tape already cut.

Tape-cut S-VSON is packaged without humidity resistance. Use manual soldering to mount them.

Refer to common precautions.

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | Symbol | G3VM-31QR | G3VM-61QR2 | G3VM-101QR1 | Unit | Measurement conditions | |
|-----------------------------------|--------------------------------------|-------------------|-------------|------------|-------------|-------|-------------------------------------|--|
| | LED forward current | lF | 30 | | | mA | | |
| Ħ | LED forward current reduction rate | ΔIF/°C | -0.3 | | | | Ta≥25°C | |
| Input | LED reverse voltage | VR | | 5 | | V | | |
| | Connection temperature | TJ | | 125 | | °C | | |
| | Load voltage (AC peak/DC) | Voff | 30 | 60 | 100 | V | | |
| = | Continuous load current (AC peak/DC) | lo | 1500 | 1000 | 650 | mA | | |
| Output | ON current reduction rate | ∆lo/°C | -15 | -10 | -6.5 | mA/°C | Ta≥25°C | |
| 0 | Pulse ON current | lop | 4.5 | 3 | 2 | Α | t=100 ms, Duty=1/10 | |
| | Connection temperature | TJ | | 125 | | °C | | |
| Dielectric strength between I/O ★ | | V _I -O | 500 | | | Vrms | AC for 1 min | |
| An | Ambient operating temperature | | -40 to +110 | | | °C | With an initial and an address time | |
| An | Ambient storage temperature | | -40 to +125 | | | °C | With no icing or condensation | |
| Soldering temperature | | - | | 260 | | °C | 10 s | |

^{*} The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

| Item | | Syn | nbol | G3VM-31QR | G3VM-61QR2 | G3VM-101QR1 | Unit | Measurement conditions | |
|--------|---|-------|---------|-----------------------|------------|-------------|--|---|--|
| | LED forward voltage | | Minimum | | 1.1 | | | | |
| | | VF | Typical | | 1.21 | | | I _F =10 mA | |
| | | | Maximum | 1.4 | | | | | |
| Ħ | Reverse current | IR | Maximum | | 10 | | μΑ | V _R =5 V | |
| Input | Capacity between terminals | Ст | Typical | | 30 | | pF | V=0, f=1 MHz | |
| | T: 150/ | | Typical | 0.6 | 0 | .7 | | lo=100 mA | |
| | Trigger LED forward current | IFT | Maximum | | 3 | | mA | I0=100 MA | |
| | Release LED forward current | IFC | Minimum | | 0.1 | | | Ioff=10 μA | |
| | | | Typical | 0.1 | 0.2 | 0.4 | | G3VM-31QR/61QR2, | |
| | Maximum resistance with output ON | Ron | Maximum | 0.2 | 0.3 | 0.6 | Ω | lo=1000 mA, IF=5 mA, t<1 s G3VM-101QR1, lo=650 mA, IF=5 mA, t<1 s | |
| Output | Current leakage when the relay is open | Ileak | Maximum | 1 | 1000 | | nA | G3VM-31QR :VoFF= 20 V G3VM-61QR2 :VoFF= 60 V (VoFF=50 V) G3VM-101QR1 :VoFF= 100 V (VoFF=80 V) | |
| | Capacity between terminals | Coff | Typical | 120 | 80 | 50 | pF | V=0, f=100 MHz, t<1 s | |
| | Capacity between terminals | Con | Maximum | - | 150 | - | þΓ | V=0, I=100 MH2, t<1 S | |
| Ca | pacity between I/O terminals | Cı-o | Typical | 1 | 0 | .9 | pF | f=1 MHz, Vs=0 V | |
| | ation resistance between I/O R _{I-O} Typical 10 ⁸ | | МΩ | Vi-o=500 VDC, RoH≤60% | | | | | |
| т | rn-ON time | t | Typical | 0.8 | 0.75 | 0.6 | ms | | |
| Iu | III-ON UIIIE | ton | Maximum | 2 | | iiis | I _F =5 mA, R _L =200 Ω, | | |
| т | m-OFF time | toff | Typical | 0.05 | | | mo | VDD=20 V * | |
| IU | III-OFF WITE | LOFF | Maximum | 1 | | | ms | | |

* Turn-ON and Turn-OFF Times





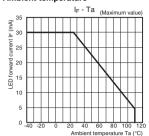
■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

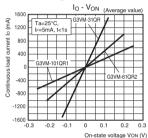
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

| Item | Symbol | | G3VM-31QR | G3VM-61QR2 | G3VM-101QR1 | Unit |
|--------------------------------------|-----------------|---------|-----------|------------|-------------|------|
| Load voltage (AC peak/DC) | V _{DD} | Maximum | 24 | 48 | 80 | V |
| | | Minimum | | 5 | | |
| Operating LED forward current | lF | Typical | | mA | | |
| | | Maximum | 20 | | | |
| Continuous load current (AC peak/DC) | lo | Maximum | 1300 | 1000 | 650 | |
| Ambient operating temperature | Ta | Minimum | -20 | | | °C |
| Ambient operating temperature | Id | Maximum | | C | | |

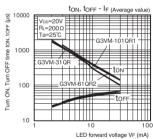
LED forward current vs. Ambient temperature



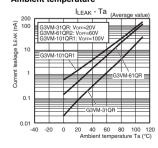
Continuous load current vs. On-state voltage



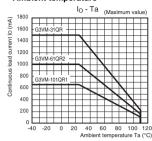
Turn ON, Turn OFF time vs. LED forward current



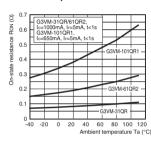
Current leakage vs. Ambient temperature



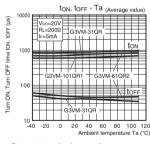
Continuous load current vs. Ambient temperature



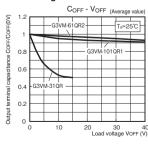
On-state resistance vs. Ambient temperature



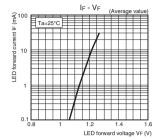
Turn ON, Turn OFF time vs. Ambient temperature



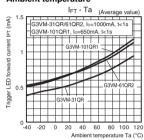
Output terminal capacitance vs. Load voltage



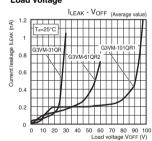
LED forward current vs. LED forward voltage



Trigger LED forward current vs. Ambient temperature



Current leakage vs. Load voltage



■Appearance / Terminal Arrangement / Internal Connections

■Appearance

S-VSON (Super-Very Small Outline Non-leaded) S-VSON4 pin

Model name *

* Actual model name marking for

| each model | |
|-------------|---------|
| Model | Marking |
| G3VM-31QR | 3Q0 |
| G3VM-61QR2 | 6Q2 |
| G3VM-101QR1 | AQ1 |

■Terminal Arrangement/Internal Connections (Top View)

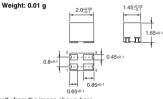


Note 1. The actual product is marked differently from the image shown here.

2. "G3VM" does not appear in the model number on the Relay.

Surface-mounting Terminals

■Dimensions (Unit: mm)



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Unless otherwise specified, the dimensional tolerance is ± 0.1 mm.

Note: The actual product is marked differently from the image shown here.

■Safety Precautions

• Refer to "Common Precautions" for all G3VM models.

G3VM-QAYQ/QDYQ

MOS FET Relays DIP 4-pin, Small and High-dielectric-strength Type

Small DIP 4-pin package with Dielectric Strength of 5,000 VAC between I/O

- Load voltage: 40 V, 60 V, 200 V, 350 V, 400 V, or 600 V
- Standard type: Trigger LED forward current 3 mA (max.)
- High sensitive type: Trigger LED forward current 2 mA (max.)



Note: The actual product is marked differently from the image shown here.

RoHS Compliant

■Application Examples

- · Electrical power unit
- Security equipment
- Medical equipment

- Test & measurement equipment
- Industrial equipment

■Package (Unit: mm, Average)

DIP 4-pin PCB Terminals



Surface-mounting Terminals



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

- 1. Load Voltage 2. Contact form
 - 4: 40 V 1: 1a
- 6: 60 V 20: 200 V
- 35: 350 V
- 40: 400 V 60: 600 V
- 1: 1a (SPST-NO)
- 4. Additional functions
 Y: Dielectric strength
 between I/O above
 2,500 V type
- 3. Package
 - A: DIP4 pin PCB terminals D: DIP4 pin Surface
 - mounting Terminals

5. Other informations

When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Standard type

| | | | Continuous | | Stick packaging | | Tape packagi | ng |
|----------|-----------|----------------|--------------|---------------|-------------------------------|---------------------|-------------------------------|---------------------|
| Package | Contact | Load voltage | load current | Mo | del | Minimum | Model | Minimum |
| . uonago | form | (peak value) * | | PCB terminals | Surface-mounting Terminals | package quantity | Surface-mounting Terminals | package quantity |
| | | 40 V | 2000 mA | G3VM-41AY1 | G3VM-41DY1 | | G3VM-41DY1(TR05) | |
| | | 60 V | 500 mA | G3VM-61AY1 | G3VM-61DY1 | | G3VM-61DY1(TR05) | |
| DIP4 | 1a | 200 V | 250 mA | G3VM-201AY1 | G3VM-201DY1 | 100 pcs. | G3VM-201DY1(TR05) | 500 pcs. |
| DII 4 | (SPST-NO) | 350 V | 100 mA | G3VM-351AY1 | G3VM-351DY1 | 100 pcs. | G3VM-351DY1(TR05) | 300 pcs. |
| | | 400 V | 120 mA | G3VM-401AY1 | G3VM-401DY1 | | G3VM-401DY1(TR05) | |
| | | 600 V | 90 mA | G3VM-601AY1 | G3VM-601DY1 | | G3VM-601DY1(TR05) | |

^{*} The AC peak and DC value are given for the load voltage and continuous load current.

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number.

High sensitive type

| | | | Continuous | (| Stick packaging | | Tape packagi | ng |
|----------|-----------|----------------|----------------|---------------|-------------------------------|---------------------|-------------------------------|---------------------|
| Package | Contact | Load voltage | load current | Mo | del | Minimum | Model | Minimum |
| 1 ackage | form | (peak value) * | (peak value) * | PCB terminals | Surface-mounting Terminals | package quantity | Surface-mounting Terminals | package quantity |
| | | 40 V | 2000 mA | G3VM-41AY | G3VM-41DY | | G3VM-41DY(TR) | |
| | | 60 V | 500 mA | G3VM-61AY | G3VM-61DY | | G3VM-61DY(TR) | |
| DIP4 | 1a | 200 V | 250 mA | G3VM-201AY | G3VM-201DY | 100 | G3VM-201DY(TR) | 4 500 |
| DIP4 | (SPST-NO) | 350 V | 100 mA | G3VM-351AY | G3VM-351DY | 100 pcs. | G3VM-351DY(TR) | 1,500 pcs. |
| | | 400 V | 120 mA | G3VM-401AY | G3VM-401DY | | G3VM-401DY(TR) | |
| | | 600 V | 90 mA | G3VM-601AY | G3VM-601DY | | G3VM-601DY(TR) | İ |

^{*} The AC peak and DC value are given for the load voltage and continuous load current.

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

•Standard type, High senstive type

| | Item | Symbol | G3VM-41DY1 G3VM-41AY | G3VM-61AY1 G3VM-61DY1 G3VM-61AY G3VM-61DY | | G3VM-351AY1 G3VM-351DY1 G3VM-351AY G3VM-351DY | | G3VM-601AY1 G3VM-601DY1 G3VM-601AY G3VM-601DY | Unit | Measurement conditions |
|--------|---|--------|-------------------------|--|--------|--|------|--|---------|------------------------|
| | LED forward current | lF | | | 3 | 10 | | | mA | |
| + | Repetitive peak LED forward current IFP 1 | | | | | | Α | 100 μs pulses, 100 pps | | |
| Input | LED forward current reduction rate | | | -(| 0.3 | | | mA/°C | Ta≥25°C | |
| = | LED reverse voltage | VR | | | | ٧ | | | | |
| | Connection temperature | TJ | | | 1. | | °C | | | |
| | Load voltage (AC peak/DC) | Voff | 40 | 60 | 200 | 350 | 400 | 600 | ٧ | |
| = | Continuous load current (AC peak/DC) | lo | 2,000 | 500 | 250 | 100 | 120 | 90 | mA | |
| Output | ON current reduction rate | Δlo/°C | -20 | -5 | -2.5 | -1 | -1.2 | -0.9 | mA/°C | Ta≥25°C |
| 0 | Pulse ON current | lop | 6 | 1.5 | 0.75 | 0.3 | 0.36 | 0.27 | Α | t=100 ms, Duty=1/10 |
| | Connection temperature | TJ | | • | 1 | 25 | • | • | °C | |
| Die | lectric strength between I/O * | VI-O | | | 5,0 | 000 | | | Vrms | AC for 1 min |
| Am | bient operating temperature | Ta | | | -40 t | 0 +85 | | | °C | With no icing or |
| Am | bient storage temperature | Tstg | | | -55 to | +125 | | | °C | condensation |
| Sol | dering temperature | - | | | 2 | 60 | | | °C | 10 s |

The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

G3VM-\QAY\Q/\QDY\Q

■Electrical Characteristics (Ta = 25°C)

●Standard type

| | Item | Symbol | | G3VM-41AY1 G3VM-41DY1 | G3VM-61AY1 G3VM-61DY1 | G3VM-201AY1 G3VM-201DY1 | G3VM-351AY1 G3VM-351DY1 | G3VM-401AY1 G3VM-401DY1 | G3VM-601AY1 G3VM-601DY1 | Unit | Measurement conditions |
|--------|--|--------|---------|--------------------------|--------------------------|--|----------------------------|----------------------------|----------------------------|-------------------------|--|
| | | | Minimum | | | | .1 | | | | |
| | LED forward voltage | VF | Typical | | | | 27 | | | V | IF=10 mA |
| | | | Maximum | | | | .4 | | | | |
| Input | Reverse current | IR | Maximum | | | 1 | 0 | | | μΑ | V _R =5 V |
| q | Capacitance between terminals | Ст | Typical | | | | 50 | | | pF | V=0, f=1 MHz |
| | Triange I ED forward avenue | let | Typical | 0.5 | | 0 | .6 | | 0.5 | mA | G3VM-41AY1/DY1 : lo=1 A Others : lo=Continuous load |
| | Trigger LED forward current | IFT | Maximum | | | ; | 3 | | | mA | Others : Io=Continuous load current ratings |
| | Release LED forward current | IFC | Minimum | | | 0 | .1 | | | mΑ | Ioff=10 μA |
| | Maximum resistance with output ON | Bon | Typical | 0.09 (0.06) | 0.6 | 5 | 35 (25) | 22 (17) | 45 (30) | Ω | IF=5 mA, Io=Continuous load current |
| Output | Maximum resistance with output ON | HON | Maximum | 0.15 (0.10) | 2 | 8 | 50 (35) | 35 (28) | 60 (40) | . 12 | ratings Values in parentheses are for t < 1 s. |
| 0 | Current leakage when the relay is open | ILEAK | Maximum | | | | 1 | | | μА | Voff=Load voltage ratings |
| | Capacitance between terminals | Coff | Typical | 300 | 130 | 90 | 30 | 80 | 75 | pF | V=0, f=1 MHz |
| Ca | pacitance between I/O terminals | CI-0 | Typical | | | 0 | .8 | | | pF | f=1 MHz, Vs=0 V |
| | ulation resistance between I/O | Ri-o | Minimum | | | 10 | 000 | | | ΜΩ | Vi-o=500 VDC, RoH≤60% |
| ten | minals | THO | Typical | | 10 ⁸ | | | | IVIAL | VIO=300 VBO, 110/130076 | |
| Tu | n-ON time | ton | Typical | 2.8 | | 1 | 0.3 | 0.6 | 0.5 | | G3VM-41AY1/DY1: RL=200 Ω, IF=10 mA, VDD=20 V |
| rui | Maximum 5 3 2 | | 2 | | ms | G3VM-601AY1/DY1 : RL=200 Ω, IF=5 mA, VDD=10 V | | | | | |
| Tui | n-OFF time | tore | Typical | 0.3 | 0.2 | 0 | .1 | 0 | .2 | 1115 | Others : RL=200 Ω. IF=5 mA. VDD=20 V |
| | | .511 | Maximum | | | | 1 | | | | * |

* Turn-ON and Turn-OFF Times





●High sensitive type

| | Item | Symbol | | G3VM-41AY G3VM-41DY | | G3VM-201AY G3VM-201DY | | G3VM-401AY G3VM-401DY | G3VM-601AY G3VM-601DY | Unit | Measurement conditions | |
|--------|---|-----------------------------|---------|------------------------|------|--------------------------|-----------------------|--------------------------|--|---------------------------|---|--|
| | | | Minimum | | | 1. | 45 | | | | | |
| | LED forward voltage | VF | Typical | | | 1. | 63 | | | V | IF=10 mA | |
| | | Maximum 1.75 | | | | | | | | | | |
| Ħ | Reverse current | verse current In Maximum 10 | | | | | | | μА | V _R =5 V | | |
| lnp | Capacitance between terminals | Ст | Typical | | 40 | | | | | pF | V=0, f=1 MHz | |
| | | | Typical | | 0.3 | | | | | | G3VM-41AY/DY : lo=1 A | |
| | Trigger LED forward current IFT Maximum 2 | | | | | | | mA | Others : Io=Continuous load current ratings | | | |
| | Release LED forward current | IFC | Minimum | | | 0. | .1 | | | mA | Ioff=10 μA | |
| | Manifestor and the state of ON | Bon | Typical | 0.09 (0.06) | 0.6 | 5 | 35 (25) | 22 (17) | 45 (30) | Ω | IF=5 mA, Io=Continuous load current | |
| Output | Maximum resistance with output ON | HON | Maximum | 0.15 (0.10) | 2 | 8 | 50 (35) | 35 (28) | 60 (40) | 12 | ratings Values in parentheses are for t < 1 s. | |
| õ | Current leakage when the relay is open | ILEAK | Maximum | | 1 | | | | μА | Voff=Load voltage ratings | | |
| | Capacitance between terminals | Coff | Typical | 300 | 130 | 90 | 30 | 80 | 75 | pF | V=0, f=1 MHz | |
| Ca | pacitance between I/O terminals | CI-O | Typical | | | 0 | .8 | | | pF | f=1 MHz, Vs=0 V | |
| | ulation resistance between I/O | RI-0 | Minimum | | 1000 | | | | | ΜΩ | Vi-o=500 VDC, RoH≤60% | |
| terr | terminals Typical 10 ⁸ | | | | | IVISZ | VI-0=300 VDC, R0H≤60% | | | | | |
| Tur | Turn-ON time | | Typical | 2 | 0 | .5 | 0.1 | 0 | .2 | | G3VM-601AY/DY: | |
| Tui | II-ON time | ton | Maximum | 5 | | | 1 | | | ms | RL=200 Ω, IF=5 mA, VDD=10 V Others : | |
| Tur | n-OFF time | torr | Typical | 0.3 | | | 0.2 | | | 1115 | RL=200 Ω, IF=5 mA, VDD=20 V | |
| · ui | II OI I uillo | LOFF | Maximum | | | | 1 | | | | * | |

* Turn-ON and Turn-OFF Times





■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

Standard type

| Item | Symbol | | | | | | | G3VM-601AY1 G3VM-601DY1 | |
|--------------------------------------|--------|---------|------|-----|-----|-----|-----|----------------------------|------|
| Load voltage (AC peak/DC) | VDD | Maximum | 32 | 48 | 160 | 280 | 320 | 480 | ٧ |
| | | Minimum | | | | 5 | | | |
| Operating LED forward current | lF | Typical | | | 7 | .5 | | | mA |
| | | Maximum | | | 2 | 5 | | | IIIA |
| Continuous load current (AC peak/DC) | lo | Maximum | 2000 | 500 | 250 | 100 | 120 | 90 | |
| Ambient operating temperature | Ta | Minimum | | | | 20 | | | ĵ |
| Ambient operating temperature | ıa | Maximum | | | 6 | 5 | | | Ü |

High sensitive type

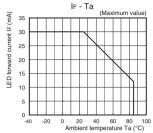
| Item | Symbol | | G3VM-41AY G3VM-41DY | G3VM-61AY G3VM-61DY | G3VM-201AY G3VM-201DY | | G3VM-401AY G3VM-401DY | G3VM-601AY G3VM-601DY | Unit |
|--------------------------------------|--------|---------|------------------------|------------------------|--------------------------|-----|--------------------------|--------------------------|------|
| Load voltage (AC peak/DC) | VDD | Maximum | 32 | 48 | 160 | 280 | 320 | 480 | ٧ |
| | | Minimum | | | | 3 | | | |
| Operating LED forward current | lF | Typical | | | | 5 | | | mA |
| | | Maximum | 1 | 5 | | 2 | 0 | | IIIA |
| Continuous load current (AC peak/DC) | lo | Maximum | 2000 | 500 | 250 | 100 | 120 | 90 | |
| Ambient operating temperature | Ta | Minimum | | • | -2 | 20 | | | ŝ |
| Ambient operating temperature | ıa | Maximum | | | 6 | 5 | | | Ü |

■Spacing and Insulation

Standard type and High sensitive type

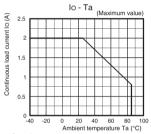
| - otanidara typo dila riigir | - Claridary type and riight constitute type | | | | | | | | | | |
|------------------------------|---|-----|----|--|--|--|--|--|--|--|--|
| Item | Unit | | | | | | | | | | |
| Creepage distances | Minimum | 7.0 | | | | | | | | | |
| Clearance distances | Minimum | 7.0 | mm | | | | | | | | |
| Internal igniation thickness | Minimum | 0.4 | | | | | | | | | |

●LED forward current vs. Ambient temperature



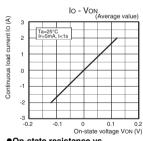
 $G3VM-\square AY\square/\square DY$

 Continuous load current vs. Ambient temperature G3VM-41AY1/DY1/AY/DY

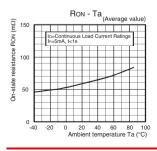


 Continuous load current vs. On-state voltage

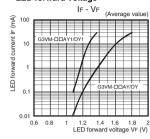




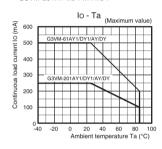
 On-state resistance vs. Ambient temperature G3VM-41AY1/DY1/AY/DY



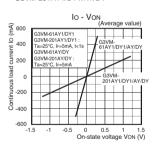
●LED forward current vs. LED forward voltage



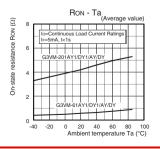
G3VM-61AY1/DY1/AY/DY G3VM-201AY1/DY1/AY/DY



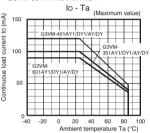
G3VM-61AY1/DY1/AY/DY G3VM-201AY1/DY1/AY/DY



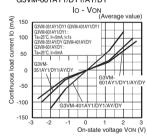
G3VM-61AY1/DY1/AY/DY G3VM-201AY1/DY1/AY/DY



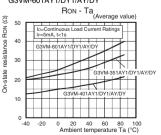
G3VM-351AY1/DY1/AY/DY G3VM-401AY1/DY1/AY/DY G3VM-601AY1/DY1/AY/DY



G3VM-351AY1/DY1/AY/DY G3VM-401AY1/DY1/AY/DY G3VM-601AY1/DY1/AY/DY

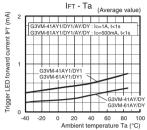


G3VM-351AY1/DY1/AY/DY G3VM-401AY1/DY1/AY/DY G3VM-601AY1/DY1/AY/DY



Trigger LED forward current vs. Ambient temperature

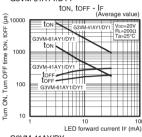
G3VM-41AY1/DY1/AY/DY G3VM-61AY1/DY1/AY/DY



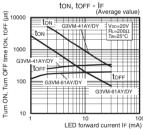
Turn ON. Turn OFF time vs. LED forward current

G3VM-41AY1/DY1

G3VM-61AY1/DY1

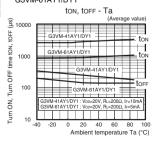


G3VM-41AY/DY G3VM-61AY/DY

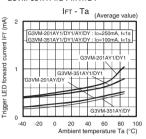


Turn ON. Turn OFF time vs. Ambient temperature

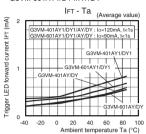
G3VM-41AY1/DY1 G3VM-61AY1/DY1



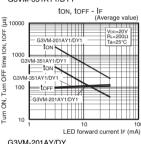
G3VM-201AY1/DY1/AY/DY G3VM-351AY1/DY1/AY/DY



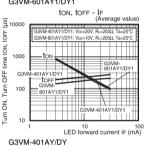
G3VM-401AY1/DY1/AY/DY G3VM-601AY1/DY1/AY/DY



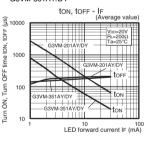
G3VM-201AY1/DY1 G3VM-351AY1/DY1



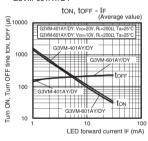
G3VM-401AY1/DY1 G3VM-601AY1/DY1



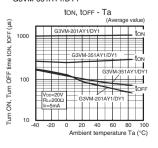
G3VM-201AY/DY G3VM-351AY/DY



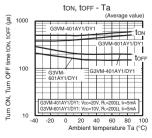
G3VM-601AY/DY



G3VM-201AY1/DY1 G3VM-351AY1/DY1



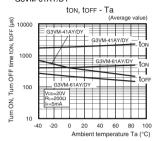
G3VM-401AY1/DY1 G3VM-601AY1/DY1



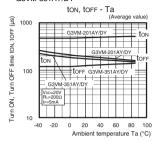
 $G3VM-\square AY\square/\square DY$

●Turn ON, Turn OFF time vs. Ambient temperature

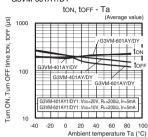
G3VM-41AY/DY G3VM-61AY/DY



G3VM-201AY/DY G3VM-351AY/DY

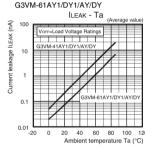


G3VM-401AY/DY G3VM-601AY/DY

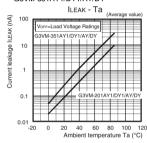


Current leakage vs. Ambient temperature

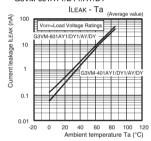
G3VM-41AY1/DY1/AY/DY



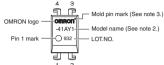
G3VM-201AY1/DY1/AY/DY G3VM-351AY1/DY1/AY/DY



G3VM-401AY1/DY1/AY/DY G3VM-601AY1/DY1/AY/DY



DIP 4-pin



Note: 1. The actual product is marked differently from the image shown here.

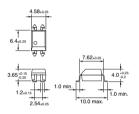
Note: 2. "G3VM" does not appear in the model number on the Relay.

Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

■Dimensions (Unit: mm)



Surface-mounting Terminals Weight: 0.25 g



PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, TOP VIEW)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized 31

•Standard type and High sensitive type

| Approved Standards | Contact form | File No. |
|--------------------|-----------------|----------|
| UL recognized | 1a (SPST-NO) | E80555 |

■Safety Precautions

· Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

91

MOS FET Relays in DIP 6-pin packages that achieve a dielectric strength of 5.000 VAC between I/O

• Load voltage: 400 V or 600 V

RoHS Compliant

■Application Examples

- · Electrical power unit Security equipment
- Industrial equipment
- Test & Measurement equipment
- Medical equipment



Note: The actual product is marked differently from the image shown here.

■Package DIP 6-pin

(Unit: mm, Average)



Surface-mounting Terminals



Note: The actual product is marked differently from the image shown here

■Model Number Legend

G3VM-

- 1. Load Voltage
- 40:400 V
- 60:600 V
- 2. Contact form 1:1a (SPST-NO)
- 3. Package
 - B: DIP 6-pin with PCB terminals
- E: DIP 6-pin with surface-mounting terminals
- 4. Additional functions
- Y: Dielectric strength between I/O above 2.500 V type

5. Other informations

When specifications overlap, serial code is added in the recorded order.

■Ordering Information

| | | | Continuous | load current | | Stick packaging | | Tape packaging | | |
|----------|--------------|----------------|--------------------|-----------------|---------------|-------------------------------|---------------------|-------------------------------|---------------------|--|
| Package | Contact form | Load voltage | (1) | alue) * | | odel | Minimum | Model | Minimum | |
| 1 dekage | Contact form | (peak value) * | Connection A, B | Connection C | PCB Terminals | Surface-mounting Terminals | package quantity | Surface-mounting Terminals | package quantity | |
| DIP6 | 1a | 400 V | 120 mA | 240 mA | G3VM-401BY | G3VM-401EY | 50 pcs. | G3VM-401EY(TR) | 1.500 pcs. | |
| Dir | (SPST-NO) | 600 V | 100 mA | 200 mA | G3VM-601BY | G3VM-601EY | oo pes. | G3VM-601EY(TR) | 1,000 μcs. | |

The AC peak and DC value are given for the load voltage and continuous load current.

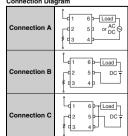
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

| | Iten | n | Symbol | G3VM-401BY G3VM-401EY | G3VM-601BY G3VM-601EY | Unit | Measurement conditions |
|--------|------------------------------------|--------------|--------|--------------------------|--------------------------|-------|-----------------------------------|
| | LED forward curre | ent | lF | 5 | 0 | mA | |
| + | Repetitive peak LED forward curren | | IFP | 1 | | Α | 100 μs pulses, 100 pps |
| Input | LED forward current reduction rate | | ΔIF/°C | -0.5 | | mA/°C | Ta ≥ 25°C |
| = | LED reverse voltage | | VR | É | 5 | V | |
| | Connection temperature | | TJ | 12 | 25 | °C | |
| | Load voltage (AC peak/DC) | | Voff | 400 | 600 | V | |
| | Cartinua Island | Connection A | | 120 | 100 | | Connection A: |
| | Continuous load Connection B | | lo | 125 | | mA | AC peak/DC Connection B and C: |
| Output | l | Connection C | | 240 | 200 | İ | DC |
| õ | ON | Connection A | | -1.2 | -1.0 | | |
| | ON current reduction rate | Connection B | ∆lo/°C | -2.4 | -2.0 | mA/°C | Ta ≥ 25°C |
| | Teddellori rate | Connection C | | 20 | 35 | 1 | |
| | Connection temper | erature | TJ | 12 | 25 | °C | |
| Die | ielectric strength between I/O * | | VI-O | 50 | 100 | Vrms | AC for 1 min |
| An | mbient operating ter | mperature | Ta | -40 to | 0 +85 | °C | With no icing or |
| An | mbient storage temp | perature | Tstg | -55 to | +125 | °C | condensation |
| So | oldering temperatur | е | - | 26 | 60 | °C | 10 s |

* The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

Connection Diagram



■Electrical Characteristics (Ta = 25°C)

| | Iten | n | Symbol | | G3VM-401BY G3VM-401EY | G3VM-601BY G3VM-601EY | Unit | Measurement conditions | |
|--------|-----------------------------------|-------------------|-------------------|---------|--------------------------|--------------------------|-------|--|--|
| | | | | Minimum | 1 | | | | |
| | LED forward volt | age | VF | Typical | 1. | 15 | V | IF=10 mA | |
| | | | | Maximum | 1. | .3 | 1 | | |
| Input | Reverse current | Reverse current | | Maximum | 10 | | μΑ | VR=5 V | |
| - | Capacitance between terminals | | Ст | Typical | 3 | 0 | pF | V=0, f=1 MHz | |
| | Trigger LED forward current | | IFT | Typical | - | 1.6 | mA | Io=Continuous load current ratings | |
| | | | | Maximum | 3 | 5 | III/S | 10=00mmdods load current rainigs | |
| | Maximum resistance with output ON | Connection A | | | 17 | 30 (25) | | G3VM-401BY/EY: IF= 5 mA, Io=120 mA G3VM-601BY/EY: IF=10 mA, Io=100 mA Values in parentheses are for t < 1 s. | |
| | | Connection B | | Typical | 11 | 23 | | G3VM-401BY/EY : IF= 5 mA, Io=120 mA G3VM-601BY/EY : IF=10 mA, Io=100 mA | |
| | | Connection C | Ron | | 6 | 12 | Ω | G3VM-401BY/EY : IF= 5 mA, Io=240 mA G3VM-601BY/EY : IF=10 mA, Io=200 mA | |
| Output | | Connection A | How | | 35 | 45 (35) | 32 | G3VM-401BY/EY: IF= 5 mA, Io=120 mA G3VM-601BY/EY: IF=10 mA, Io=100 mA Values in parentheses are for t < 1 s. | |
| | | Connection B | | Maximum | 20 | 35 | | G3VM-401BY/EY : IF= 5 mA, Io=120 mA G3VM-601BY/EY : IF=10 mA, Io=100 mA | |
| | | Connection C | | | 10 | 18 | | G3VM-401BY/EY : IF= 5 mA, Io=240 mA G3VM-601BY/EY : IF=10 mA, Io=200 mA | |
| | Current leakage open | when the relay is | ILEAK | Maximum | 1 | ı | μА | Voff=Load voltage ratings | |
| | Capacitance bet | | Coff | Typical | 40 | 120 | pF | V=0, f=1 MHz | |
| C | apacitance betwee | n I/O terminals | C _I -o | Typical | 0 | | pF | f=1 MHz, Vs=0 V | |
| | Insulation resistance between I/O | | RI-O | Minimum | | 00 | MΩ | V⊦o=500 VDC. RoH≤60% | |
| te | rminals | | | Typical | 10 | | | | |
| Т | urn-ON time | | ton | Typical | 0.3 | 0.2 | _ | G3VM-401BY/EY : Ir=5mA, | |
| | | | | Maximum | 1.0 | 1.5 | ms | RL=200Ω, VDD=20V * | |
| Т | urn-OFF time | | toff | Typical | 0.1 | 0.2 | 1 | G3VM-601BY/EY : IF=10mA, | |
| | | | | Maximum | 1.0 | | | RL=200Ω, VDD=20V * | |

* Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

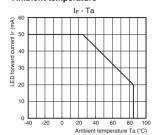
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

| Item | Symbol | | G3VM-401BY G3VM-401EY | G3VM-601BY G3VM-601EY | Unit | |
|--------------------------------------|--------|---------|--------------------------|--------------------------|------|--|
| Load voltage (AC peak/DC) | VDD | Maximum | 320 | 480 | V | |
| | | Minimum | 5 | 7.5 | | |
| Operating LED forward current | lF | Typical | 7.5 | 15 | mA | |
| | | Maximum | 2 | 5 | mA | |
| Continuous load current (AC peak/DC) | lo | Maximum | 120 | 100 | | |
| Ambient operating temperature | Ta | Minimum | -20 | | °C | |
| Ambient operating temperature | ı a | Maximum | 65 | | | |

■Spacing and Insulation

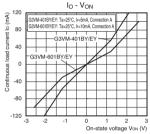
| Item | Minimum | Unit |
|------------------------------|---------|------|
| Creepage distances | 7.0 | |
| Clearance distances | 7.0 | mm |
| Internal isolation thickness | 0.4 | |

LED forward current vs. Ambient temperature

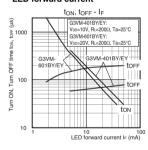


G3VM-\BY/\EY

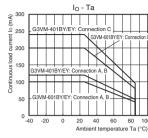
Continuous load current vs. On-state voltage



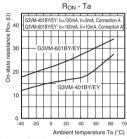
● Turn ON, Turn OFF time vs. LED forward current



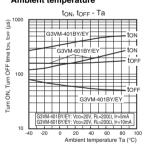
Continuous load current vs. Ambient temperature



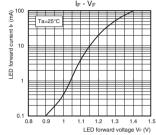
On-state resistance vs. Ambient temperature



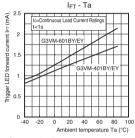
Turn ON, Turn OFF time vs. Ambient temperature



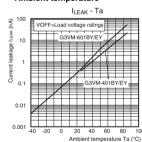
LED forward current vs. LED forward voltage



Trigger LED forward current vs. Ambient temperature



Current leakage vs. Ambient temperature

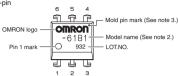


■Appearance / Terminal Arrangement / Internal Connections

Appearance

DIP (Dual Inline Package)

DIP 6-pin



●Terminal Arrangement/Internal Connections (Top View)



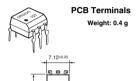
Note: 1. The actual product is marked differently from the image shown here.

Note: 2. "G3VM" does not appear in the model number on the Relay.

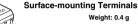
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark

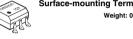
is from a pin on the mold.

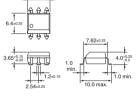
■Dimensions (Unit: mm)











PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, Top View) 8.3 to 8.8

7.85 to 8.80 Note: The actual product is marked differently from the image shown here.

0.25+0.1

■Approved Standards

0.5±0.1

UL recognized

| Approved Standards | Contact form | File No. |
|--------------------|--------------|----------|
| UL (recognized) | 1a (SPST-NO) | E80555 |

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

G3VM-\|L/\|FL/\|GL

MOS FET Relays Current-limiting Type

MOS FET Relays that protect themselves from overcurrents with a current-limiting protection function

 Package: DIP 4-pin, DIP 8-pin or SOP 4-pin • Contact form: 1a (SPST-NO) or 2a (DPST-NO)

 Load voltage: 350 V Current limit: 150 to 300 mA

RoHS Compliant



Note: The actual product is marked differently from the image shown here

■Application Examples

- Communication equipment
- Industrial equipment
- Test & Measurement equipment

■Package

(Unit: mm, Average) SOP 4-pin

G3VM-

1. Load Voltage

35:350 V

3. Package G: SOP 4-pin with

L: Current limiting

2. Contact form

1:1a (SPST-NO)

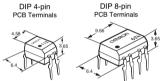
4. Additional functions

surface-mounting terminals

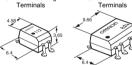
■Model Number Legend

1 2 3 4

Note: The model number legend for the G3VM-2L/2FL/WL/WFL is different from the above legend.



Surface-mounting Terminals





Surface-mounting

Note: The actual product is marked differently from the image shown here.

Surface-mounting

■Ordering Information

| | | | Continuous load | | Stick packaging | | Tape packaging | | |
|---------|-----------------|----------------|-----------------|---------------|-------------------------------|---------------------|-------------------------------|---------------------|--|
| Package | Contact | Load voltage | | Mo | del | Minimum | Model | Minimum | |
| | form | (peak value) * | (peak value) * | PCB Terminals | Surface-mounting Terminals | package quantity | Surface-mounting Terminals | package quantity | |
| DIP4 | 1a (SPST-NO) | | | G3VM-2L | G3VM-2FL | 100 pcs. | G3VM-2FL(TR) | 1,500 pcs. | |
| DIP8 | 2a (DPST-NO) | 350 V | 120 mA | G3VM-WL | G3VM-WFL | 50 pcs. | G3VM-WFL(TR) | 1,500 pcs. | |
| SOP4 | 1a (SPST-NO) | | | = | G3VM-351GL | 100 pcs. | G3VM-351GL(TR) | 2,500 pcs. | |

* The AC peak and DC value are given for the load voltage and continuous load current.

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | Symbol | G3VM-2L G3VM-2FL | G3VM-WL G3VM-WFL | G3VM-351GL | Unit | Measurement conditions | |
|--------|--|--------|---------------------|---------------------|------------|-------|------------------------|--|
| | LED forward current | lF | | 50 | | mA | | |
| | Repetitive peak LED forward current | IFP | | 1 | | Α | 100 μs pulses, 100 pps | |
| nbnt | LED forward current reduction rate | ΔIF/°C | | -0.5 | | mA/°C | Ta ≥ 25°C | |
| = | LED reverse voltage | VR | 6 5 | | | V | | |
| | Connection temperature | TJ | 125 | | | °C | | |
| | Load voltage (AC peak/DC) | Voff | 350 | | | V | | |
| Output | Continuous load current (AC peak/DC) | lo | 120 | | | mA | | |
| Out | ON current reduction rate | Δlo/°C | | -1.2 | | | Ta ≥ 25°C | |
| | Connection temperature | TJ | | 125 | | °C | | |
| Die | Dielectric strength between I/O * | | 25 | 00 | 1500 | Vrms | AC for 1 min | |
| An | Ambient operating temperature | | -40 to +85 | | | °C | With no icing or | |
| An | Ambient storage temperature Soldering temperature | | -55 to +125 | | | °C | condensation | |
| So | | | 260 | | | °C | 10 s | |

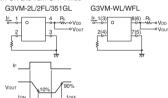
^{*} The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

G3VM-\\\L/\\\FL/\\

| | Item | Symbol | | G3VM-2L G3VM-2FL | G3VM-WL G3VM-WFL | G3VM-351GL | Unit | Measurement conditions | |
|--------|--|--------|---------|---------------------|---------------------|------------|------------------------------|---|--|
| | | | Minimum | | 1.0 | • | | | |
| | LED forward voltage | VF | Typical | | 1.15 | | ٧ | IF=10 mA | |
| | | | Maximum | 1.3 | | | Ĭ | | |
| Input | Reverse current | lR | Maximum | | 10 | | μА | G3VM-2L/2FL/WL/WFL : VR=6 V G3VM-351GL : VR=5 V | |
| 르 | Capacitance between terminals | Ст | Typical | 30 | | | pF | V=0, f=1 MHz | |
| | Trigger LED forward current | let | Typical | | 1 | | mA | lo=120 mA | |
| | Trigger LED forward current | IFI | Maximum | 3 | | | | 10=120 IIIA | |
| | Release LED forward current | IFC | Minimum | | 0.1 | | mA | G3VM-2L/2FL/WL/WFL : IoFF=10 μA G3VM-351GL : IoFF=100 μA | |
| | Maximum resistance with output | Ron | Typical | 22 15 | | | Ω | IF=5 mA, Io=120 mA | |
| = | ON | HON | Maximum | 35 | | | 12 | IF=5 MA, 10=120 MA | |
| Output | Current leakage when the relay is open | ILEAK | Maximum | | 1.0 | | μА | Voff=350 V | |
| | Capacitance between terminals | Coff | Typical | 4 | 0 | 70 | pF | V=0, f=1 MHz | |
| Lie | nit current | Інм | Minimum | | 150 | | mA | IF=5 mA, Vpp=5 V, t=5 ms | |
| LIII | nii current | ILIM | Maximum | | 300 | | IIIA | IF=5 IIIA, VDD=5 V, t=5 IIIS | |
| Ca | pacitance between I/O terminals | Ci-o | Typical | | 0.8 | | pF | f=1 MHz, Vs=0 V | |
| Ins | sulation resistance between I/O | RI-O | Minimum | | 1000 | | MΩ | Vi-o=500 VDC, RoH≤60% | |
| ter | terminals | | Typical | | 10 ⁸ | | IVISZ | VI-0=300 VDC, NOH≤60% | |
| Tu | Turn-ON time | | Typical | - 0.3 | | | | | |
| Tu | III-ON UIIIE | ton | Maximum | 1.0 | | ms | IF=5 mA, RL=200 Ω, Vpp=2 V * | | |
| т | Turn-OFF time | | Typical | - 0.1 | | | 1115 | IF=5 MA, HL=200 Ω, VDD=2 V * | |
| Tu | | | Maximum | 1.0 | | | Î | | |

Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

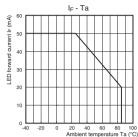
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

| ltem | Symbol | | G3VM-2L G3VM-2FL | G3VM-WL G3VM-WFL | G3VM-351GL | Unit | |
|--------------------------------------|--------|---------|---------------------|---------------------|------------|------|--|
| Load voltage (AC peak/DC) | VDD | Maximum | 280 | | | | |
| | | Minimum | | 5 | | | |
| Operating LED forward current | lF | Typical | 7.5 | | | | |
| | | Maximum | 25 | | | | |
| Continuous load current (AC peak/DC) | lo | Maximum | 100 | | | | |
| Ambient operating temperature | Ta | Minimum | -20 | | | | |
| Ambient operating temperature | ıα | Maximum | 65 | | | | |

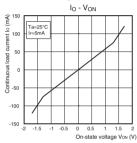
■Spacing and Insulation

| Item | Mini | Unit | |
|------------------------------|-------------|----------|-----|
| item | G3VM-□L/□FL | G3VM-□GL | Omi |
| Creepage distances | 7.0 | 2.5 | |
| Clearance distances | 7.0 | 2.5 | mm |
| Internal isolation thickness | 0.4 | 0.1 | |

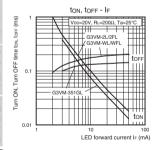
LED forward current vs. Ambient temperature



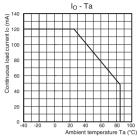
Continuous load current vs. On-state voltage



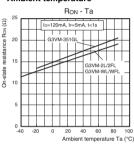
Turn ON, Turn OFF time vs. LED forward current



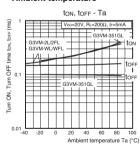
Continuous load current vs. Ambient temperature



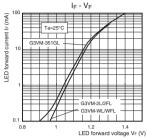
On-state resistance vs. Ambient temperature



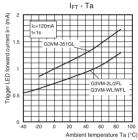
Turn ON, Turn OFF time vs. Ambient temperature



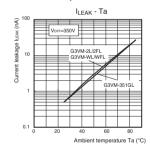
LED forward current vs. LED forward voltage



Trigger LED forward current vs. Ambient temperature



Current leakage vs. Ambient temperature

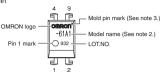


■Appearance / Terminal Arrangement / Internal Connections

Appearance

DIP (Dual Inline Package)

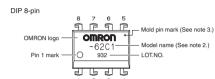
DIP 4-pin

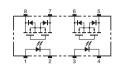


G3VM-\BL/\BFL/\BGL

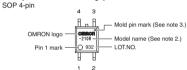
●Terminal Arrangement/Internal Connections (Top View)







SOP (Small Outline Package)





Note: 1. The actual product is marked differently from the image shown here. Note: 2, "G3VM" does not appear in the model number on the Relay.

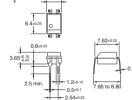
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

■Dimensions (Unit: mm)



PCB Terminals

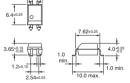






Surface-mounting Terminals

Weight: 0.4 g







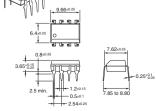
Actual Mounting Pad Dimensions (Recommended Value, TOP VIEW) 2.54



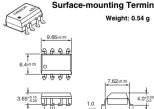
Note: The actual product is marked differently from the image shown here.

G3VM-WL

PCB Terminals Weight: 0.54 g



G3VM-WFL



Surface-mounting Terminals



PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions (Recommended Value TOP VIFW)



Note: The actual product is marked differently from the image shown here.

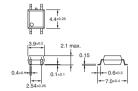
■Dimensions (Unit: mm)

G3VM-351GL



Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions (Recommended Value, TOP VIEW)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

| Model | Approved Standards | Contact form | File No. | |
|---------------------|--------------------|--------------|----------|--|
| G3VM-2L G3VM-2FL | UL (recognized) | 1a (SPST-NO) | Egoffe | |
| G3VM-WL G3VM-WFL | OL (recognized) | 2a (DPST-NO) | - E80555 | |

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

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G3VM-21GR / 41GR4/41GR5/41GR6/81GR

MOS FET Relays SOP 4-pin, Low-output-capacitance and Low-ON-resistance Type (with Low C × 8)/M-21PR10

MOS FET Relays in SOP 4-pin packages that achieve a low $\mathbf{C} \times \mathbf{R}$

- Load voltage: 20 V, 40 V, or 80 V
- G3VM-21GR: Low C \times R = 5 pF· Ω , Coff (standard) = 1 pF, Ron (standard) = 5 Ω
- G3VM-21GR1: Low C \times R = 5 pF· Ω , Coff (standard) = 5 pF, Ron (standard) = 1 Ω
- G3VM-41GR6: Low C \times R = 10 pF· Ω , Coff (standard) = 1 pF, Rox (standard) = 10 Ω
- G3VM-41GR4: Low C \times R = 10 pF· Ω , Coff (standard) = 5 pF, Ron (standard) = 2 Ω
- G3VM-41GR5: Low C \times R = 10 pF \cdot Ω , Coff (standard) = 10 pF, Ron (standard) = 1 Ω



Note: The actual product is marked differently from the image shown here.

RoHS Compliant

■Application Examples

- Semiconductor test equipment
- Test & Measurement equipment
- Communication equipment
- Security equipment
- Industrial equipment
- Power circuit

(Unit:mm, Average) ■Model Number Legend

■Package

SOP 4-pin



Note: The actual product is marked differently from the image shown here.

G3VM-

- 1. Load Voltage 2. Contact form
- 2:20 V 4:40 V 8:80 V
- 1 : 1a (SPST-NO)
- 4. Additional functions
- R: Low ON resistance
- 3. Package
- G: SOP 4-pin

· Amusement equipment

5. Other informations

When specifications overlap, serial code is added in the recorded order.

■Ordering Information

| | Contact | | Load voltage | Continuous load | Stick pa | ckaging | Tape packaging | | |
|---------|-----------------|-------------------------------|----------------|---------------------------|------------|-----------------------------|----------------|-----------------------------|--|
| Package | form | Terminals | (peak value) * | current (peak value) * | Model | Minimum package quantity | Model | Minimum package quantity | |
| | | | 20 V | 160 mA | G3VM-21GR | 100 pcs. | G3VM-21GR(TR) | 2,500 pcs. | |
| | | Surface-mounting Terminals | | 300 mA | G3VM-21GR1 | | G3VM-21GR1(TR) | | |
| | | | 40 V | 120 mA | G3VM-41GR6 | | G3VM-41GR6(TR) | | |
| SOP4 | 1a (SPST-NO) | | | 250 mA | G3VM-41GR4 | | G3VM-41GR4(TR) | | |
| | (01 01 110) | Terrinas | | 300 mA | G3VM-41GR5 | | G3VM-41GR5(TR) | | |
| | | | 80 V | 40 mA | G3VM-81GR | | G3VM-81GR(TR) | | |
| | | | | 200 mA | G3VM-81GR1 | | G3VM-81GR1(TR) | 1 | |

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | Symbol | G3VM- 21GR | G3VM- 21GR1 | G3VM- 41GR6 | G3VM- 41GR4 | G3VM- 41GR5 | G3VM- 81GR | G3VM- 81GR1 | Unit | Measurement conditions |
|-----------------------|--|--------|-------------------------------------|----------------|----------------|----------------|----------------|---------------|----------------|------------------|------------------------|
| | LED forward current | lF | | | | mA | | | | | |
| Input | LED forward current reduction rate | ΔIF/°C | | -0.5 | | | | | | | Ta≥25°C |
| | LED reverse voltage | VR | | 5 | | | | | | | |
| | Connection temperature | TJ | | | | 125 | | | | °C | |
| | Load voltage (AC peak/DC) | Voff | 20 40 8 | | 8 | 80 | V | | | | |
| out | Continuous load current (AC peak/ DC) | lo | 160 | 300 | 120 | 250 | 300 | 40 | 200 | mA | |
| Output | ON current reduction rate | Δlo/°C | -1.6 | -3.0 | -1.2 | -2.5 | -3.0 | -0.4 | -2.0 | mA/°C | Ta ≥ 25°C |
| | Pulse ON current | lop | 480 | 900 | 360 | 750 | 900 | 120 | 600 | mA | t=100 ms, Duty=1/10 |
| | Connection temperature | TJ | | | | 125 | | | | °C | |
| D | ielectric strength between I/O ★ | VI-O | | | | 1500 | | | | Vrms | AC for 1 min |
| Α | Ambient operating temperature | | -20 to +85 | | | | | | °C | With no icing or | |
| Α | Ambient storage temperature | | -40 to +125 -55 to +125 -40 to +125 | | | | | °C | condensation | | |
| Soldering temperature | | - | | | | 260 | | | | °C | 10 s |

^{*} The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

| | Item | Symbol | | G3VM- 21GR | G3VM- 21GR1 | G3VM- 41GR6 | G3VM- 41GR4 | G3VM- 41GR5 | G3VM- 81GR | G3VM- 81GR1 | Unit | Measurement conditions | |
|--------|--|----------------|---------|---------------|----------------|----------------|----------------|----------------|---------------|----------------------|-------|--|--|
| | | | Minimum | | | | 1.0 | | | | | | |
| | LED forward voltage | VF | Typical | | | | 1.15 | | | | ٧ | IF=10 mA | |
| | | | Maximum | | | | 1.3 | | | | | | |
| | Reverse current | l _R | Maximum | | | | 10 | | | | μΑ | VR=5 V | |
| nont | Capacitance between terminals | Ст | Typical | | | | 15 | | | | pF | V=0, f=1 MHz | |
| u | Trigger LED forward current | lfT | Maximum | | 4 | | | | | 3 | mA | G3VM-21GR/21GR1/41GR4/ 41GR5/41GR6 : lo=100 mA G3VM-81GR : lo=40 mA G3VM-81GR1 : lo=200 mA | |
| | Release LED forward current | IFC | Minimum | | | 0.2 | | | 0 | .1 | mA | Ioff=10μA | |
| | Maximum resistance with output ON | Bon | Typical | 5 | 1 | 10 | 2 | 1 | 16 | 5 | Ω | G3VM-21GR/21GR1/41GR4/ 41GR5/41GR6: Ir=5 mA, Io=Continuous load current ratings, | |
| | | | Maximum | 8 | 1.5 | 15 | 3 | 1.5 | 25 | 8 | | t<1s G3VM-81GR/81GR1 : IF=5 mA, lo=Continuous load current ratings | |
| Output | Current leakage when the relay is open | ÎLEAK | Maximum | | 1 | | | | | | nA | G3VM-21GR/21GR1: VoFF=20 V, Ta=50°C G3VM-41GR4/41GR65/41GR6: VoFE=30 V, Ta=50°C G3VM-81GR1: VoFF=80 V, Ta=50°C G3VM-81GR1: VoFF=80 V, Ta=50°C | |
| | Capacitance between | Coff | Typical | 1 | 5 | 1 | 5 | 10 | 2.5 | 6.5 | pF | G3VM-21GR/21GR1/41GR4/ 41GR5/41GR6 : V=0. f=100 MHz, t<1 s | |
| | terminals | COFF | Maximum | 2.5 | 12 | 2 | 7 | 14 | 3.5 | 11 | | G3VM-81GR/81GR1 : V=0, f=100 MHz, t<10 s | |
| | apacitance between I/O minals | Cı-o | Typical | | • | 0.8 | • | • | 0 | .7 | pF | f=1 MHz, Vs=0 V | |
| In | sulation resistance | Ri-o | Minimum | | | | 1000 | | | | МΩ | Vi-o=500 VDC, RoH≤60% | |
| b | etween I/O terminals | ni-0 | Typical | | | | 108 | | | | IVISZ | VI-0=300 VDC, NOH≤60% | |
| т | urn-ON time | ton | Typical | | | - | | | 0.07 | 0.13 | | G3VM-21GR/21GR1/41GR4/41GR5/ | |
| 1 | ani Oiv unie | ton | Maximum | | | | 0.5 | | | | | 41GR6 : IF=10 mA, RL=200 Ω, | |
| т | urn OEE time | torr | Typical | | | = | | | 0.07 | 0.17 | ms | VDD=20 V * G3VM-81GR/81GR1 :IF=5 mA. | |
| 1 | urn-OFF time toff | | Maximum | mum 0.5 | | | | | | RL=200 Ω. VDD=10 V * | | | |

* Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

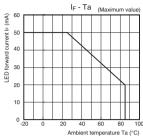
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

| 9 | Item | Symbol | | G3VM- 21GR | G3VM- 21GR1 | G3VM- 41GR6 | G3VM- 41GR4 | G3VM- 41GR5 | G3VM- 81GR | G3VM- 81GR1 | Unit |
|----|--------------------------------------|--------|-------------------------|---------------|----------------|----------------|----------------|----------------|---------------|----------------|------|
| 1 | Load voltage (AC peak/DC) | VDD | V _{DD} Maximum | | 20 | | 32 | | 64 | | V |
| d. | Operating LED forward current | le | Minimum | | 7 10 | | | | 5 | | |
| 2 | Operating LED forward current | IF. | Maximum | | 30 | | | | | | mA |
| | Continuous load current (AC peak/DC) | lo | Maximum | 160 | 300 | 120 | 250 | 300 | 40 | 200 | |
| 5 | Ambient operating temperature | Ta | Minimum | -20 | | | | | | • °C | |
| 3 | Ambient operating temperature | ı a | Maximum | 60 | | | | | | | |

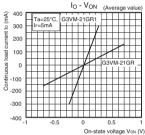
■Spacing and Insulation

| Item | Minimum | Unit | | |
|------------------------------|---------|------|--|--|
| Creepage distances | 4.0 | | | |
| Clearance distances | 4.0 | mm | | |
| Internal isolation thickness | 0.1 | | | |

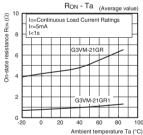
LED forward current vs. Ambient temperature



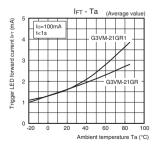
Continuous load current vs. On-state voltage G3VM-21GR/21GR1



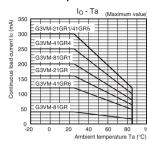
On-state resistance vs. Ambient temperature G3VM-21GR/21GR1



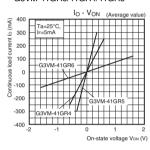
Trigger LED forward current vs. Ambient temperature G3VM-21GR/21GR1



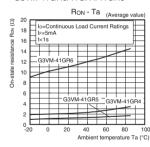
Continuous load current vs. Ambient temperature



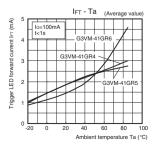
G3VM-41GR6/41GR4/41GR5



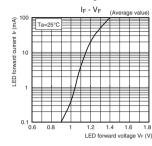
G3VM-41GR6/41GR4/41GR5



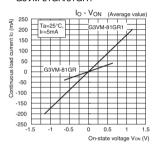
G3VM-41GR6/41GR4/41GR5



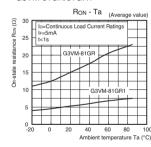
LED forward current vs. LED forward voltage



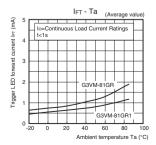
G3VM-81GR/81GR1



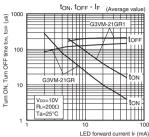
G3VM-81GR/81GR1



G3VM-81GR/81GR1

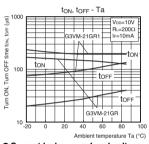


Turn ON, Turn OFF time vs. LED forward current G3VM-21GR/21GR1

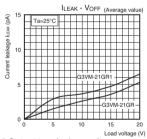


■ Turn ON, Turn OFF time vs.

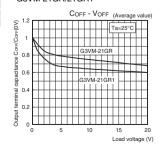
Ambient temperature
G3VM-21GR/21GR1



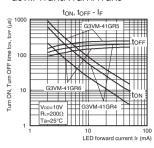
● Current leakage vs. Load voltage G3VM-21GR/21GR1



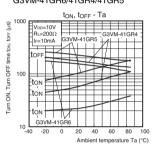
 Output terminal capacitance vs. Load voltage G3VM-21GR/21GR1



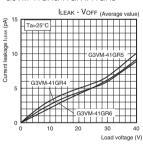
G3VM-41GR6/41GR4/41GR5



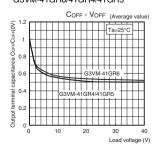
G3VM-41GR6/41GR4/41GR5



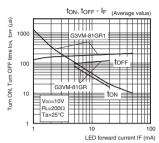
G3VM-41GR6/41GR4/41GR5



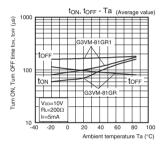
G3VM-41GR6/41GR4/41GR5



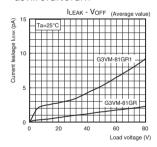
G3VM-81GR/81GR1



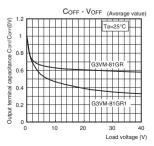
G3VM-81GR/81GR1



G3VM-81GR/81GR1



G3VM-81GR/81GR1



SOP

G3VM-21GR_/41GR4/41GR5/41GR6/81GR

■Appearance / Terminal Arrangement / Internal Connections

G3VM-21GR\(\to\)/41GR4/41GR5/41GR6/81GR\(\text{L}\)

Appearance

SOP (Small Outline Package)

SOP 4-pin Model name (See note 2.) LOT.NO.

Note: 1. The actual product is marked differently from the image shown here.

Note: 2. "G3VM" does not appear in the model number on the Relay.

Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

●Terminal Arrangement/Internal Connections (Top View)

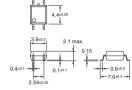


Dimensions (Unit: mm)



Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions (Recommended Value, TOP VIEW)

Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized 🔊



| Approved Standards | Contact form | File No. | | |
|--------------------|--------------|----------|--|--|
| UL (recognized) | 1a (SPST-NO) | E80555 | | |

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

MOS FET Relays SSOP, Low-output-capacitance and Low-ON-resistance Type (with Low C x R)

MOS FET Relays in SSOP packages that achieve a low $\mathbf{C} \times \mathbf{R}$

- Load voltage: 20 V
- G3VM-21LR: Low C \times R = 5 pF· Ω , Coff (standard) = 1 pF, Ron (standard) = 5 Ω
- G3VM-21LR10: Low C \times R = 2.4 pF· Ω , Coff (standard) = 0.8 pF, Ron (standard) = 3 Ω
- G3VM-21LR1: Low C \times R = 4 pF· Ω , Coff (standard) = 5 pF, Ron (standard) = 0.8 Ω
- G3VM-21LR11: Low C \times R = 7.2 pF $\cdot\Omega$, Coff (standard) = 40 pF, Ron (standard) = 0.18 Ω

RoHS Compliant

■Application Examples

- Semiconductor test equipment
- Communication equipment
- Test & Measurement equipment
- Data loggers

Note: The actual product is marked differently from the image shown here.

■Package

(Unit: mm, Average)

SSOP 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

1. Load Voltage 2. Contact form

2:20 V

1 : 1a (SPST-NO) L : SSOP 4-pin

5. Other informations

4. Additional functions

B: Low ON resistance

When specifications overlap, serial code is added in the recorded order.

3. Package

■Ordering Information

| | Contact | | Load voltage | Continuous load | Tape cut | packaging | Tape packaging | | |
|--------|-----------|-------------------------------|----------------|---------------------------|-------------|-----------------------------|-------------------|-----------------------------|--|
| Packag | form | Terminals | (peak value) * | current (peak value) * | Model | Minimum package quantity | Model | Minimum package quantity | |
| | | Surface-mounting Terminals | | 160 mA | G3VM-21LR | | G3VM-21LR(TR05) | 500 pcs. | |
| SSOP4 | 1a | | 20 V | 200 mA | G3VM-21LR10 | 1 pc. | G3VM-21LR10(TR05) | | |
| 55UP4 | (SPST-NO) | | | 450 mA | G3VM-21LR1 | | G3VM-21LR1(TR05) | | |
| | | | | 900 mA | G3VM-21LR11 | | G3VM-21LR11(TR05) | | |

* The AC peak and DC value are given for the load voltage and continuous load current

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number.

Tape-cut SSOPs are packaged without humidity resistance. Use manual soldering to mount them. Refer to common precautions.

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | Symbol | G3VM-21LR | G3VM-21LR10 | G3VM-21LR1 | G3VM-21LR11 | Unit | Measurement conditions |
|--------|--------------------------------------|-------------------|-----------|-------------|------------|--------------|------------------|--|
| | LED forward current | lF | 50 | 30 | 50 | 50 | mA | |
| Input | LED forward current reduction rate | ΔIF/°C | -0.5 | -0.3 | -0.5 | | mA/°C | Ta ≥ 25°C |
| 直 | LED reverse voltage | VR | | 5 | V | | | |
| | Connection temperature | TJ | 125 | | | | | |
| | Load voltage (AC peak/DC) | Voff | | 20 | | | V | |
| = | Continuous load current (AC peak/DC) | lo | 160 | 200 | 450 | 900 | mA | |
| Output | ON current reduction rate | Δlo/°C | -1.6 | -2.0 | -4.5 | -12 | mA/°C | G3VM-21LR11 : Ta ≥ 50°C Others : Ta ≥25°C |
| | Pulse ON current | lop | 480 | 600 | 1,350 | 2,700 | mA | t=100 ms, Duty=1/10 |
| | Connection temperature | TJ | | 125 | °C | | | |
| Di | ielectric strength between I/O * | V _I -o | | 1500 |) | | Vrms | AC for 1 min |
| Ar | mbient operating temperature | Ta | | -20 to - | | °C | With no icing or | |
| Ar | mbient storage temperature | Tstg | | -40 to + | °C | condensation | | |
| S | oldering temperature | - | | 260 | l | | °C | 10 s |

^{*} The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

21LR

■Electrical Characteristics (Ta = 25°C)

G3VM-21LR

| | Item | Symbol | | G3VM-21LR | G3VM-21LR10 | G3VM-21LR1 | G3VM-21LR11 | Unit | Measurement conditions | |
|--------|-----------------------------------|--------|--------------------|-------------|--------------|----------------|-------------|-------|---|--|
| | LED forward voltage | VF | Minimum Typical | 1.0 1.15 | 1.15 1.35 | 1 1. | .0 15 | v | G3VM-21LR10 : IF=5 mA G3VM-21LR/21LR1/21LR11 : | |
| | | | Maximum | 1.3 | 1.45 | 1 | .3 | i | IF=10 mA | |
| | Reverse current | IR | Maximum | | 1 | 0 | | μА | VR=5 V | |
| Input | Capacitance between terminals | Ст | Typical | 15 | 70 | 1 | 5 | pF | V=0, f=1 MHz | |
| | Trigger LED forward current | lft | Maximum | 4 | 3 | 4 | 3 | mA | Io=100 mA | |
| | Release LED forward current | IFC | Minimum | 0.2 | 0.1 | 0.2 | 0.1 | mA | Ioff=10 μA | |
| | Maximum resistance with output ON | Ron | Typical | 5 | 3 | 0.8 | 0.18 | Ω | G3VM-21LR/21LR1 : IF=5 mA, Io=Continuous load current ratings, t=10 ms | |
| ont | | | Maximum | 8 | 5 | 1.2 | 0.22 | 12 | G3VM-21LR10/21LR11 : IF=5 mA, lo=Continuous load current ratings, t<1 s | |
| Output | Current leakage when | | Typical | - | 0.01 | = | | | G3VM-21LR/21LR1: | |
| _ | the relay is open | ILEAK | Maximum | 1 | 0.2 | 1 | | nA | Voff=20 V, Ta=50°C G3VM-21LR10/21LR11 : Voff=20 V | |
| | Capacitance between | Coff | Typical | 1 | 0.8 | 5 | 40 | _ | G3VM-21LR10 : V=0, f=100 MHz G3VM-21LR/21LR1/21LR11 : | |
| | terminals | COFF | Maximum | 2.5 | 1.1 | 12 | = | pF | V=0, f=100 MHz, t<1 s | |
| | apacitance between I/O minals | CI-O | Typical | 0.8 | 0.3 | 0.8 | 0.3 | pF | f=1 MHz, Vs=0 V | |
| | sulation resistance | Ri-o | Minimum | | 10 | 00 | • | МΩ | Vi-o=500 VDC, RoH≤60% | |
| be | tween I/O terminals | THE | Typical | | 10 |) ⁸ | | IVISZ | VI-0=300 VDC, 110/1200 /6 | |
| Τu | rn-ON time | ton | Typical | 0.06 | - | 0.2 | 0.3 | | | |
| | | | Maximum | 0.5 | 0.2 | 0.5 | 2 | ms | IF=5 mA, RL=200 Ω , VDD=10 V * | |
| Τu | urn-OFF time | toff | Typical | 0.12 | - | | .2 | | | |
| | | | Maximum | 0.5 | 0.2 | 0.5 | 1 | | | |

* Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

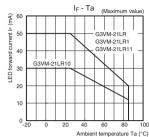
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

| | | | | ,, | | | | | |
|--------------------------------------|--------|---------|-----------|-------------|------------|-------------|------|--|--|
| Item | Symbol | | G3VM-21LR | G3VM-21LR10 | G3VM-21LR1 | G3VM-21LR11 | Unit | | |
| Load voltage (AC peak/DC) | VDD | Maximum | | 20 | | | | | |
| Operating LED forward current | le | Minimum | 10 | - | 10 | - | | | |
| Operating LLD forward current | IF. | Maximum | 30 | 20 | 30 | 20 | mA | | |
| Continuous load current (AC peak/DC) | lo | Maximum | 160 | 200 | 450 | 900 | | | |
| Ambient operating temperature | Та | Minimum | -20 | | | | | | |
| Ambient operating temperature | | Maximum | um 60 65 | | | | | | |

■Spacing and Insulation

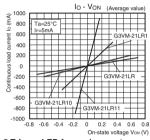
| Item | Minimum | Unit | | |
|------------------------------|---------|------|--|--|
| Creepage distances | 2.5 | | | |
| Clearance distances | 2.5 | mm | | |
| Internal isolation thickness | 0.1 | | | |

LED forward current vs. Ambient temperature

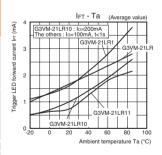


Continuous load current vs. On-state voltage

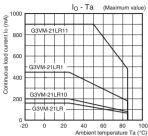
Multi-contact-pair (2a, 2b, and 1a1b)



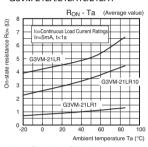
 Trigger LED forward current vs. Ambient temperature



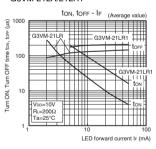
Continuous load current vs. Ambient temperature



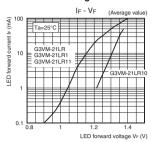
On-state resistance vs. Ambient temperature G3VM-21LR/21LR10/21LR1



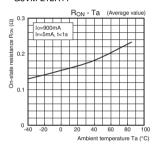
Turn ON, Turn OFF time vs. LED forward current G3VM-21LR/21LR1



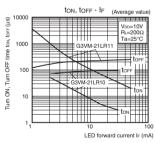
LED forward current vs. LED forward voltage



G3VM-21LR11



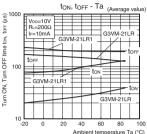
G3VM-21LR10/21LR11



172

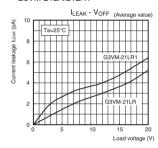
● Turn ON, Turn OFF time vs. Ambient temperature G3VM-21LR/21LR1

G3VM-21LR

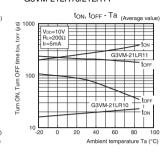


Current leakage vs. Load voltage

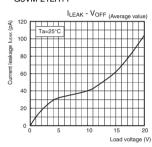
G3VM-21LR/21LR1



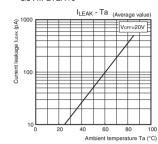
G3VM-21LR10/21LR11



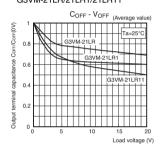
G3VM-21LR11



Current leakage vs. Ambient temperature G3VM-21LR10



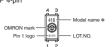
Output terminal capacitance vs. Load voltage G3VM-21LR/21LR1/21LR11



■Appearance / Terminal Arrangement / Internal Connections

Appearance

SSOP (Shrink Small Outline Package) SSOP 4-pin



* Actual model name marking

for each model

| Model | Marking |
|-------------|---------|
| G3VM-21LR | 210 |
| G3VM-21LR10 | 21A |
| G3VM-21LR1 | 211 |
| G3VM-21LR11 | 21B |

●Terminal Arrangement/ Internal Connections (Top View)



Note: 1. The actual product is marked differently from

the image shown here.

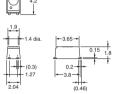
Note: 2. "G3VM" does not appear in the model number on the Relay.

■Dimensions (Unit: mm)



Surface-mounting Terminals

Weight: 0.03 g



Unless otherwise specified, the dimensional tolerance is \pm 0.1 mm.

Actual Mounting Pad Dimensions (Recommended Value, TOP VIEW)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized 🔊

| Approved Standards | Contact form | File No. |
|--------------------|--------------|----------|
| UL (recognized) | 1a (SPST-NO) | E80555 |

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

3VM-41

MOS FET Relays SSOP, Low-output-capacitance and Low-ON-resistance Type (with Low C x R)

MOS FET Relays in SSOP packages that achieve a low C × R

Load voltage: 40 V

• G3VM-41LR10 : Low C \times R = 5.4 pF $\cdot\Omega$, Coff (standard) = 0.45 pF, Ron (standard) = 12 Ω

• G3VM-41LR6 : Low C \times R = 10 pF· Ω , Coff (standard) = 1 pF, Ron (standard) = 10 Ω

• G3VM-41LR11 : Low C \times R = 4.9 pF· Ω , Coff (standard) = 0.7 pF, Ron (standard) = 7 Ω

• G3VM-41LR4 : Low C \times R = 10 pF· Ω , Coff (standard) = 5 pF, Ron (standard) = 2 Ω

• G3VM-41LR5 : Low C \times R = 10 pF $\cdot \Omega$, Coff (standard) = 10 pF, Ron (standard) = 1 Ω

Note: The actual product is marked differently from the image shown here.

RoHS Compliant

■Application Examples

· Semiconductor test equipment

Communication equipment

• Test & Measurement equipment

Data loggers

■Package

(Unit: mm, Average)

SSOP 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-1 2 3 4

1. Load Voltage 2. Contact form

3. Package 4:40 V 1:1a (SPST-NO) L: SSOP 4-pin

4. Additional functions R: Low ON resistance

5. Other informations

When specifications overlap, serial code is added in the recorded order.

■Ordering Information

| | Contact | Terminals | Load voltage (peak value) * | Continuous load | Tape cut | packaging | Tape packaging | | |
|---------|-----------------|-------------------------------|--------------------------------|---------------------------|-------------|-----------------------------|-------------------|-----------------------------|--|
| Package | form | | | current (peak value) * | Model | Minimum package quantity | Model | Minimum package quantity | |
| | | Surface-mounting Terminals | 40 V | 120 mA | G3VM-41LR10 | | G3VM-41LR10(TR05) | 500 pcs. | |
| | | | | | G3VM-41LR6 | | G3VM-41LR6(TR05) | | |
| SSOP4 | 1a (SPST-NO) | | | 140 mA | G3VM-41LR11 | 1 pc. | G3VM-41LR11(TR05) | | |
| | (31-110) | | | 250 mA | G3VM-41LR4 | | G3VM-41LR4(TR05) | | |
| | | | | 300 mA | G3VM-41LR5 | | G3VM-41LR5(TR05) | | |

^{*} The AC peak and DC value are given for the load voltage and continuous load current. Note: To order tape packaging for Belays with surface-mounting terminals, add "(TR05)" to the end of the model number.

Tape-cut SSOPs are packaged without humidity resistance. Use manual soldering to mount them. Refer to common precautions.

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | Symbol | G3VM-41LR10 | G3VM-41LR6 | G3VM-41LR11 | G3VM-41LR4 | G3VM-41LR5 | Unit | Measurement conditions |
|-------------------------------|--------------------------------------|--------|----------------|------------|-------------|------------|------------|------------------|------------------------|
| Input | LED forward current | lF | 30 | 50 | 30 | 50 | | mA | |
| | LED forward current reduction rate | ΔIF/°C | -0.3 -0.5 -0.3 | | -0.5 | | mA/°C | Ta≥25°C | |
| = | LED reverse voltage | VR | | | V | | | | |
| | Connection temperature | TJ | 125 | | | | | | |
| ont | Load voltage (AC peak/DC) | Voff | 40 | | | | | | |
| | Continuous load current (AC peak/DC) | lo | 12 | 20 | 140 | 250 | 300 | mA | |
| Output | ON current reduction rate | Δlo/°C | -1.2 | | -1.4 | -2.5 | -3.0 | mA/°C | Ta ≥ 25°C |
| | Pulse ON current | lop | 360 | | 420 | 750 | 900 | mA | t=100 ms, Duty=1/10 |
| | Connection temperature | TJ | 125 | | | | | | |
| D | ielectric strength between I/O * | VI-O | 1500 | | | | | | AC for 1 min |
| Ambient operating temperature | | Ta | -20 to +85 | | | | °C | With no icing or | |
| Α | mbient storage temperature | Tstg | -40 to +125 | | | | | °C | condensation |
| S | oldering temperature | - | 260 | | | | | | 10 s |

The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

| | Item | Symbol | | G3VM-41LR10 | G3VM-41LR6 | G3VM-41LR11 | G3VM-41LR4 | G3VM-41LR5 | Unit | Measurement conditions | |
|--------|-----------------------------------|-------------------------|--------------------|-----------------|------------|-------------|------------|------------|---|--|--|
| | LED forward | | Minimum | 1.15 | 1.0 | 1.15 | 1. | .0 | | G3VM-41LR4/41LR5/41LR6 : IE=10 mA | |
| | | VF | Typical | 1.35 | 1.15 | 1.3 | 1.15 | | ٧ | IF=10 MA G3VM-41LR10/41LR11 : | |
| | Tomago | | Maximum | 1.45 | 1.3 | 1.45 | 1. | .3 | | IF=5 mA | |
| | Reverse current | IR | Maximum | | 10 | | | | μА | VR=5 V | |
| Input | Capacitance between terminals | Ст | Typical | 70 | 15 | 70 | 1 | 5 | pF | V=0, f=1 MHz | |
| | Trigger LED forward current | lft | Maximum | 3 | 4 | 3 | 4 | 1 | mA | Io=100 mA | |
| | Release LED forward current | IFC | Minimum | 0.1 | 0.2 | 0.1 | 0. | 2 | mA | G3VM-41LR4/41LR5/41LR6/41LR10 : loff=10 µA G3VM-41LR11 : loff=1 µA | |
| | Maximum resistance with output ON | Dou | Typical | 12 | 10 | 7 | 2 | 1 | Ω | G3VM-41LR4/41LR6 : IF=5 mA, Io=Continuous load current ratings, t=10 ms | |
| Output | | Maximum | 14 | 15 | 10 | 3 | 1.5 | 22 | G3VM-41LR5/41LR10/41LR11: IF=5 mA, Io=Continuous load current ratings, t<1 s | | |
| | Current leakage | | | 0.01 | - | 0.01 | - | | G3VM-41LR4/41LR5/41LR6: | | |
| | when the relay is open | ILEAK | Maximum | 0.2 | 1 | 0.2 | 1 | 1 | nA | Voff=30 V, Ta=50°C G3VM-41LR10/41LR11 : Voff=35 V | |
| | Capacitance | COFF | Typical | 0.45 | 1 | 0.7 | 5 | 10 | ρF | V=0, f=100 MHz, t<1 s | |
| | between terminals | COFF | Maximum | 0.8 | 2 | 1.3 | 7 | 14 | þΓ | V=0, I=100 WHZ, I<1 S | |
| | apacitance between D terminals | Cı-o | Typical | 0.3 | 0.8 | 0.3 | 0. | 0.8 | | f=1 MHz, Vs=0 V | |
| | sulation resistance | resistance Ri-o Minimum | | 1000 | | | | | МΩ | Vi-o=500 VDC, RoH≤60% | |
| be | etween I/O terminals | 111-0 | Typical | 10 ⁸ | | | | | IVIZZ | VI-0=300 VBO, 1101130070 | |
| Τι | urn-ON time | | Typical | - | 0.05 | - | 0.12 | 0.2 | | | |
| | | | Maximum | 0.2 | 0.5 | 0.2 | 0.5 | | ms | IF=5 mA. RL=200 Ω. Vpp=10 V * | |
| Τι | ırn-OFF time | toff | Typical Maximum | _ | 0.12 | _ | 0.14 | 0.2 | | | |
| | | Maxi | | 0.3 | 0.5 | 0.2 | 0.5 | | | | |

* Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

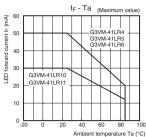
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

| | , | | | | | | | | |
|--------------------------------------|---|----------------|-------------|------------|-------------|------------|------------|------|--|
| Item | Symbol | | G3VM-41LR10 | G3VM-41LR6 | G3VM-41LR11 | G3VM-41LR4 | G3VM-41LR5 | Unit | |
| Load voltage (AC peak/DC) | VDD | Maximum | 32 | | | | | | |
| Operating LED forward current | lF | Minimum – 10 – | | - | 1 | | | | |
| | IF. | Maximum | 20 | 30 | 20 | 30 | | mA | |
| Continuous load current (AC peak/DC) | lo | Maximum | 120 | | 140 | 250 | 300 | | |
| Ambient operating temperature | Ta | Minimum | | -20 | | | | | |
| | 1 a | Maximum | | | 60 | | °C | | |

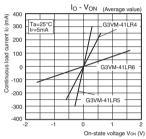
■Spacing and Insulation

| Item | Minimum | Unit |
|------------------------------|---------|------|
| Creepage distances | 2.5 | |
| Clearance distances | 2.5 | mm |
| Internal isolation thickness | 0.1 | |

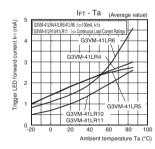
LED forward current vs. Ambient temperature



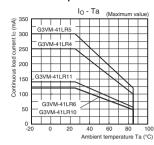
Continuous load current vs.
 On-state voltage
 G3VM-41LR6/41LR4/41LR5



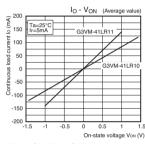
Trigger LED forward current vs.
 Ambient temperature



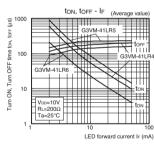
Continuous load current vs. Ambient temperature



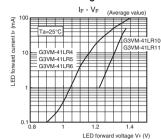
G3VM-41LR10/41LR11



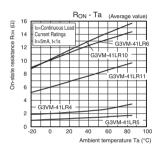
Turn ON, Turn OFF time vs. LED forward current G3VM-41LR6/41LR4/41LR5



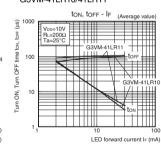
LED forward current vs. LED forward voltage

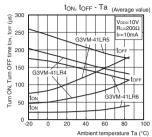


On-state resistance vs.
 Ambient temperature



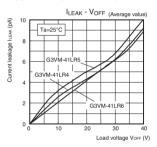
G3VM-41LR10/41LR11



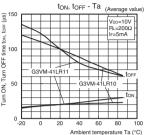


● Current leakage vs. Load voltage

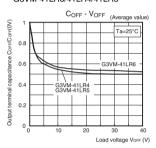
G3VM-41LR6/41LR4/41LR5



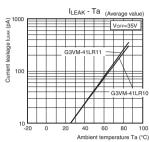
G3VM-41LR10/41LR11



 Output terminal capacitance vs. Load voltage G3VM-41LR6/41LR4/41LR5



● Current leakage vs.
Ambient temperature
G3VM-41LR10/41LR11



and Low-ON-resistance

Multi-contact-pair (2a, 2b, and 1a1b)

load-voltage Stand

SSC USC VSC

3VM-41LR

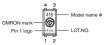
■Appearance / Terminal Arrangement / Internal Connections

Appearance

SSOP (Shrink Small Outline Package)

G3VM-41LR

SSOP 4-pin



Note: 1. The actual product is marked differently from

the image shown here. Note: 2. "G3VM" does not appear in the model number on the Relay.

* Actual model name marking for each model

| Model | Marking |
|-------------|---------|
| G3VM-41LR10 | 41A |
| G3VM-41LR6 | 416 |
| G3VM-41LR11 | 41B |
| G3VM-41LR4 | 414 |
| G3VM-41LR5 | 415 |

●Terminal Arrangement/ Internal Connections (Top View)

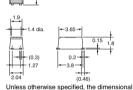


■Dimensions (Unit: mm)



Surface-mounting Terminals

Weight: 0.03 g



tolerance is ± 0.1 mm.

Actual Mounting Pad Dimensions

(Recommended Value, TOP VIEW)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

| Approved Standards | Contact form | File No. | |
|--------------------|--------------|----------|--|
| UL (recognized) | 1a (SPST-NO) | E80555 | |

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

MOS FET Relays USOP, Low-output-capacitance and Low-ON-resistance Type (with Low C x R)

USOP Package with Low Output Capacitance and ON Resistance

Load voltage: 20 V

• G3VM-21PR10: Low C \times R = 2.4 pF $\cdot \Omega$, Coff (standard) = 0.8 pF,

Ron (standard) = 3 Ω

• G3VM-21PR1: Low $C \times R = 3 pF \cdot \Omega$, Coff (standard) = 5 pF,

Ron (standard) = 0.6 Ω

• G3VM-21PR11: Low C \times R = 7.2 pF· Ω , Coff (standard) = 40 pF,

Ron (standard) = 0.18 Ω

RoHS Compliant



Note: The actual product is marked differently from the image shown here.

■Application Examples

Semiconductor test equipment

- Communication equipment
- Test & measurement equipment
- Data loggers

■Package (Unit: mm. Average)

USOP 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM- ... 1 2 3 4 5

1. Load Voltage

2: 20 V

4. Additional functions R: Low On-resistance

2. Contact form 1: 1a (SPST-NO) 3. Package P: USOP 4 pin

5. Other informations

When specifications overlap, serial code is added in the recorded order.

■Ordering Information

| | | | Load voltage (peak value) * | Continuous Tape cut pa | | ackaging | Tape packaging | |
|---------|-----------------|-----------|-----------------------------|------------------------|-------------|--------------------------------|-------------------|--------------------------------|
| Package | Contact form | Terminals | | load current | Model | Minimum package quantity | Model | Minimum package quantity |
| | 1a (SPST-NO) | | 20 V 450 mA | 200 mA | G3VM-21PR10 | 1 pc. | G3VM-21PR10(TR05) | 500 pcs. |
| USOP4 | | | | 450 mA | G3VM-21PR1 | | G3VM-21PR1(TR05) | |
| | | | | G3VM-21PR11 | | G3VM-21PR11(TR05) | 1 | |

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number. Tape-cut USOPs are packaged without humidity resistance. Use manual soldering to mount them. Refer to common precautions.

* The AC peak and DC value are given for the load voltage and continuous load current.

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | Symbol | G3VM-21PR10 | G3VM-21PR1 | G3VM-21PR11 | Unit | Measurement conditions |
|--------|--------------------------------------|-------------------|-------------|---------------|-------------|---------------------------------|---|
| | LED forward current | lF | | 50 | | mA | |
| Input | LED forward current reduction rate | ΔIF/°C | | -0.5 | | mA/°C | Ta≥25°C |
| ᆸ | LED reverse voltage | VR | | 5 | | V | |
| | Connection temperature | TJ | | 125 | °C | | |
| | Load voltage (AC peak/DC) | Voff | | 20 | V | | |
| | Continuous load current (AC peak/DC) | lo | 200 | 450 | 900 | mA | |
| Output | ON current reduction rate | Δlo/°C | -2.0 | -2.0 -4.5 -12 | | mA/°C | G3VM-21PR10/21PR1 : Ta ≥ 25°C G3VM-21PR11 : Ta ≥ 50°C |
| | Pulse ON current | lop | 600 | 1,300 | 2,700 | mA | t=100 ms, Duty=1/10 |
| | Connection temperature | Tu | | 125 | | °C | |
| Die | electric strength between I/O * | V _I -o | | 500 | | Vrms | AC for 1 min |
| Am | bient operating temperature | Ta | | -40 to +85 | °C | With no icing or condensation | |
| Am | Ambient storage temperature | | | -40 to +125 | °C | vviiii no ionig of condensation | |
| Sol | dering temperature | - | | 260 | | °C | 10 s |

The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

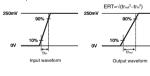
■Electrical Characteristics (Ta = 25°C)

| | Item | Symbol | | G3VM-21PR10 | G3VM-21PR1 | G3VM-21PR11 | Unit | Measurement conditions | |
|----------------------|--|------------------|---------|-------------|------------|-------------|-------|------------------------------------|--|
| | | | Minimum | | 1.0 | | | | |
| | LED forward voltage | VF | Typical | | 1.15 | | V | IF=10 mA | |
| | | | Maximum | | 1.3 | | | | |
| Input | Reverse current | IR | Maximum | | 10 | | μА | V _R =5 V | |
| п | Capacitance between terminals | Ст | Typical | | 15 | | | V=0, f=1 MHz | |
| | Trigger LED forward current | let | Typical | 1 | 0 | 1.6 | mA | lo=100 mA | |
| | Trigger LED forward current | IFI | Maximum | | 3 | | IIIA | 10=100 IIIA | |
| | Release LED forward current | IFC | Minimum | | 0.1 | | mA | Ioff=10 μA | |
| | Maximum resistance with | Bon | Typical | 3 | 0.6 | 0.18 | Ω | IF=5 mA, t<1 s | |
| | output ON | TION | Maximum | 5 | 1.2 | 0.22 | 32 | lo=Continuous load current ratings | |
| Output | Current leakage when the relay is open | ILEAK | Maximum | 1 | | | nA | Voff=20 V | |
| | Capacitance between terminals | Coff | Typical | 0.8 | 5 | 40 | pF | V=0, f=100 MHz, t<1 s | |
| | Capacitance between terminals | COFF | Maximum | 1.1 | 12 | - | pΓ | V=0, I=100 MHz, I<1 S | |
| Ca | pacitance between I/O terminals | C _{I-O} | Typical | | 0.4 | | pF | f=1 MHz, Vs=0 V | |
| Ins | ulation resistance between I/O | Rı-o | Minimum | | 1000 | | MΩ | Vi-o=500VDC, RoH≤60% | |
| ten | minals | ni-u | Typical | | 108 | | IVISZ | VI-0=300 VDC, NOH≤00% | |
| т | rn-ON time | ton | Typical | 0.04 | 0.2 | 0.5 | | | |
| Tui | III-ON time | ION | Maximum | 0.2 | 0.5 | 2 | ms | IF=5 mA, RL=200 Ω , | |
| т | rn-OFF time | toff | Typical | 0.13 | 0.2 | 0.1 | 1115 | VDD=10 V *1 | |
| rui | III-OI I LIIIIE | IOFF | Maximum | 0.2 | 0.5 | 1 | | | |
| Ear | uivalent rise time | ERT | Typical | - | 40 | - | ps | IF=5 mA, VDD=0.25 V, Tr(in)=25 ps | |
| Equivalent rise time | | Lini | Maximum | - | 90 | _ | ρS | *2 | |

Turn-ON and Turn-OFF Times



Equivalent Rise Time



■Recommended Operating Conditions

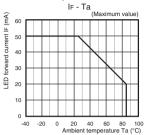
For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

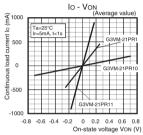
| Item | Symbol | | G3VM-21PR10 | G3VM-21PR1 | G3VM-21PR11 | Unit | | |
|--------------------------------------|--------|---------|-------------|------------|-------------|------|--|--|
| Load voltage (AC peak/DC) | VDD | Maximum | | V | | | | |
| | | Minimum | | 5 | | | | |
| Operating LED forward current | lF | Typical | | 7.5 | | | | |
| | | Maximum | | | mA | | | |
| Continuous load current (AC peak/DC) | lo | Maximum | 200 | 200 450 | | | | |
| Ambient operating temperature | Ta | Minimum | | - °C | | | | |
| Ambient operating temperature | I d | Maximum | | | | | | |

LED forward current vs. Ambient temperature

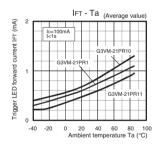
(2a, 2b, and 1a1b)



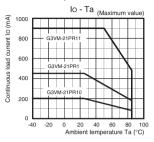
Continuous load current vs. On-state voltage



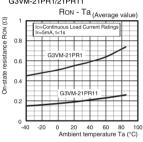
•Trigger LED forward current vs. Ambient temperature



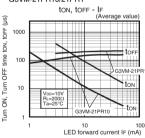
Continuous load current vs. Ambient temperature



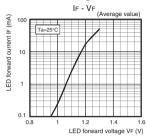
●On-state resistance vs. Ambient temperature G3VM-21PR1/21PR11



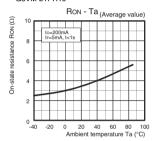
●Turn ON, Turn OFF time vs. LED forward current G3VM-21PR10/21PR1



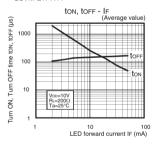
LED forward current vs. LED forward voltage



G3VM-21PR10



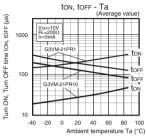
G3VM-21PR11



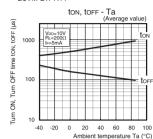
USOP

●Turn ON, Turn OFF time vs. Ambient temperature G3VM-21PR10/21PR1

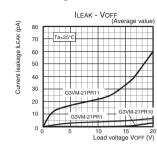
G3VM-21PR



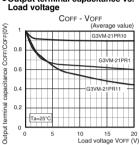
G3VM-21PR11



●Current leakage vs. Load voltage



Output terminal capacitance vs.





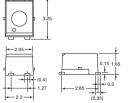
Note: 1. The actual product is marked differently from the image shown here. Note: 2. "G3VM" does not appear in the model number on the Relay.

■Dimensions (Unit: mm)

Surface-mounting Terminals

Weight: 0.03 g





Unless otherwise specified, the dimensional tolerance is \pm 0.2 mm.

Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Unless otherwise specified, the dimensional tolerance is ± 0.2 mm.

■Approved Standards

| JL recognized | 277 |
|---------------|--------|
| Approved Star | ndards |

| Approved Standards | Contact form | File No. |
|--------------------|-----------------|----------|
| UL recognized | 1a (SPST-NO) | E80555 |

Note: The actual product is marked differently from the image shown here.

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

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G3VM−41PR□/51F

MOS FET Relays USOP, Low-output-capacitance and Low-ON-resistance Type (with Low C x R)

USOP Package with Low Output Capacitance and ON Resistance

Load voltage: 40 V or 50 V

• G3VM-41PR12: Low C \times R = 4.5 pF· Ω , Coff (standard) = 0.3 pF,

Ron (standard) = 15 Ω

• G3VM-41PR6: Low C \times R = 10 pF $\cdot \Omega$, Coff (standard) = 1 pF,

Ron (standard) = 10 Ω

• G3VM-41PR10: Low C \times R = 5.4 pF· Ω , Coff (standard) = 0.45 pF,

Ron (standard) = 12 Ω

• G3VM-41PR11: Low C \times R = 4.9 pF· Ω , Coff (standard) = 0.7 pF,

Ron (standard) = 7 Ω

• G3VM-41PR5: Low C \times R = 10 pF $\cdot \Omega$, Coff (standard) = 10 pF,

Ron (standard) = 1 Ω

• G3VM-51PR: Low $C \times R = 12 pF \cdot \Omega$. Coff (standard) = 12 pF.

Ron (standard) = 1 Ω

RoHS Compliant



Note: The actual product is marked differently from the image shown here.

3. Package

P: USOP 4-pin

■Application Examples

- · Semiconductor test equipment
- Communication equipment
- Test & measurement equipment
- Data loggers

■Package (Unit:mm, Average)

■Model Number Legend

USOP 4-pin

Note: The actual product is marked differently from the image shown here.

G3VM- 1 2 3 4 5

1. Load Voltage 4: 40 V

5: 50 V

4. Additional functions

1: 1a (SPST-NO) 5. Other informations

2. Contact form

R: Low On-resistance When specifications overlap, serial code is added in the recorded order.

■Ordering Information

| | | Terminals | | Continuous | Tape cut p | oackaging | Tape packa | ging |
|---------|--------------|-------------------------------|--------------------------------|--------------|-------------|--------------------------------|-------------------|--------------------------------|
| Package | Contact form | | Load voltage (peak value) * | load current | Model | Minimum package quantity | Model | Minimum package quantity |
| | | Surface-mounting Terminals | 40 V 50 V | 100 mA | G3VM-41PR12 | | G3VM-41PR12(TR05) | |
| | | | | 120 mA | G3VM-41PR6 | 1 pc. | G3VM-41PR6(TR05) | |
| USOP4 | 1a | | | | G3VM-41PR10 | | G3VM-41PR10(TR05) | F00 |
| USUP4 | (SPST-NO) | | | 140 mA | G3VM-41PR11 | | G3VM-41PR11(TR05) | 500 pcs. |
| | | | | 300 mA | G3VM-41PR5 | | G3VM-41PR5(TR05) | |
| | | | | 300 mA | G3VM-51PR | | G3VM-51PR(TR05) | |

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number. Tape-cut USOPs are packaged without humidity resistance. Use manual soldering to mount them. Refer to common precautions.

^{*} The AC peak and DC value are given for the load voltage and continuous load current.

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | Symbol | G3VM-41PR12 | G3VM-41PR6 | G3VM-41PR10 | G3VM-41PR11 | G3VM-41PR5 | G3VM-51PR | Unit | Measurement conditions | |
|-------|---|--------|-------------|------------|-------------|-------------|------------|-----------|-------|-------------------------------|--|
| | LED forward current | lF | | | 5 | 0 | | | mA | | |
| Input | LED forward current reduction rate | ΔIF/°C | | | -0 |).5 | | | mA/°C | Ta≥25°C | |
| 르 | LED reverse voltage | VR | | | į | 5 | | | V | | |
| | Connection temperature | TJ | 125 | | | | | | | | |
| | Load voltage (AC peak/DC) | Voff | | | 40 | | | 50 | V | | |
| = | Continuous load current (AC peak/DC) | lo | 100 | 12 | 20 | 140 | 30 | 0 | mA | | |
| utput | ON current reduction rate | Δlo/°C | -1.0 | -1 | .2 | -1.4 | - | 3 | mA/°C | Ta≥25°C | |
| 0 | Pulse ON current | lop | 300 | 36 | 60 | 420 | 90 | 0 | mA | t=100 ms, Duty=1/10 | |
| | Connection temperature | TJ | | • | 12 | 25 | • | | °C | | |
| Die | electric strength between I/O (See note 1.) | Vi-o | | | 50 | 00 | | | Vrms | AC for 1 min | |
| Am | bient operating temperature | Ta | | | -40 to | 0 +85 | | | °C | With no icing or condensation | |
| Am | bient storage temperature | Tstg | | | –40 to | +125 | | | °C | with no iding or condensation | |
| So | Idering temperature | - | | | 26 | 30 | | | °C | 10 s | |

Note: 1. The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

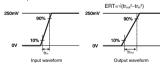
■Electrical Characteristics (Ta = 25°C)

| | Item | Symbol | | G3VM-41PR12 | G3VM-41PR6 | G3VM-41PR10 | G3VM-41PR11 | G3VM-41PR5 | G3VM-51PR | Unit | Measurement conditions | |
|--------|--|--------|---------|-------------|------------|-------------|----------------|------------|-----------|-------|---------------------------------------|--|
| | | | Minimum | | | 1. | .0 | | | | | |
| | LED forward voltage | VF | Typical | | | 1.1 | 15 | | | V | IF=10 mA | |
| | | | Maximum | 1.3 | | | | | | | | |
| Input | Reverse current | lr | Maximum | | | 1 | 0 | | | μА | V _R =5 V | |
| 直 | Capacitance between terminals | Ст | Typical | | | 1 | 5 | | | pF | V=0, f=1 MHz | |
| | Trigger LED forward current | let | Typical | 1.0 | 0.6 | 0.5 | 1.0 | 0.6 | 0.5 | mA | lo=100 mA | |
| | ringger LED forward current | IFI | Maximum | 3 | | | | | | IIIA | IO=100 IIIA | |
| | Release LED forward current | IFC | Minimum | | | 0.1 | | | 0.2 | | Ioff=10 μA | |
| | Maximum resistance with | Ron | Typical | 15 | 10 | 12 | 7 | | 1 | Ω | IF=5 mA, t<1 s | |
| | output ON | TION | Maximum | 20 | 15 | 14 | 10 | 1. | .5 | 22 | Io=Continuous load current ratings | |
| Output | Current leakage when the relay is open | ILEAK | Maximum | 1 | 0.2 | 1 | | | | nA | Voff=Load voltage ratings | |
| ľ | Capacitance between terminals | Coff | Typical | 0.3 | 1 | 0.45 | 0.7 | 10 | 12 | pF | V=0, f=100 MHz, t<1 s | |
| | Capacitance between terminals | COFF | Maximum | 0.6 | 2 | 0.8 | 1.3 | 14 | 1 | pΓ | | |
| Ca | apacitance between I/O terminals | Cı-o | Typical | | | 0. | .4 | | | pF | f=1 MHz, Vs=0 V | |
| Ins | sulation resistance between I/O | Rı-o | Minimum | | | 10 | 00 | | | МΩ | Vi-o=500 VDC, RoH≤60% | |
| tei | rminals | 111-0 | Typical | | | 10 |) ₈ | | | 10122 | VI-0=300 VDC, 1101120076 | |
| Tu | rn-ON time | ton | Typical | 0.04 | 0.05 | 0.03 | 0.04 | 0 | .2 | | | |
| | | 1011 | Maximum | | 0. | .2 | | 0 | 0.5 ms | | IF=5 mA, RL=200 Ω, VDD=20 V *1 | |
| Tu | Turn-OFF time | | Typical | 0.12 | 0.16 | 0.2 | 0.14 | 0.2 | 0.1 | 0 | | |
| 10 | | | Maximum | 0.2 | 0. | .3 | 0.2 | 0.3 | 0.4 | | | |
| Fo | univalent rise time | FRT | Typical | - 40 | | | | | 40 | ps | IF=5 mA, VDD=0.25 V, | |
| E | Equivalent rise time | | Maximum | | | - | | | 90 | þδ | Tr(in)=25 ps *2 | |

*1. Turn-ON and Turn-OFF Times



*2. Equivalent Rise Time



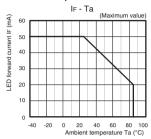
■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

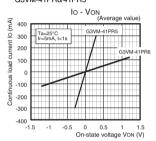
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

| Item | Symbol | | G3VM-41PR12 | G3VM-41PR6 G | 3VM-41PR10 | G3VM-41PR11 | G3VM-41PR5 | G3VM-51PR | Unit | |
|--------------------------------------|--------|---------|-------------|--------------|------------|-------------|------------|-----------|------|--|
| Load voltage (AC peak/DC) | VDD | Maximum | 32 40 | | | | | | | |
| | | Minimum | | | Ę | 5 | | | | |
| Operating LED forward current | lF | Typical | 7.5 | | | | | | | |
| | | Maximum | 20 | | | | | | | |
| Continuous load current (AC peak/DC) | lo | Maximum | 100 | 120 140 300 | | | | | | |
| Ambient operating temperature | Ta | Minimum | -20 | | | | | | | |
| Ambient operating temperature | ıa | Maximum | 65 | | | | | | | |

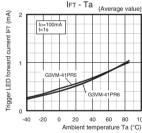
LED forward current vs. Ambient temperature



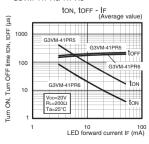
Continuous load current vs. On-state voltage G3VM-41PR6/41PR5



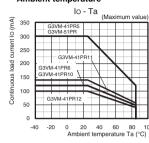
Trigger LED forward current vs. Ambient temperature G3VM-41PR6/41PR5



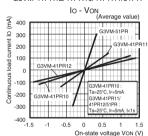
●Turn ON, Turn OFF time vs. LED forward current G3VM-41PR6/41PR5

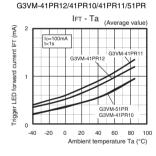


Continuous load current vs. Ambient temperature

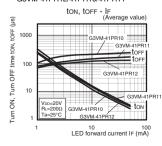


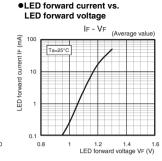
G3VM-41PR12/41PR10/41PR11/51PR



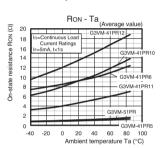


G3VM-41PR12/41PR10/41PR11

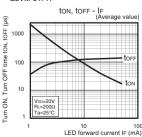




On-state resistance vs. Ambient temperature

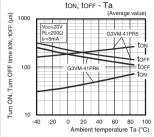


G3VM-51PR



●Turn ON, Turn OFF time vs. Ambient temperature

G3VM-41PR6/41PR5



| Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | R | 200 | Von=20V | 200 | Von=20V | R | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=20V | 200 | Von=

40 60 80 100

Ambient temperature Ta (°C)

ton, toff - Ta

(Average value)

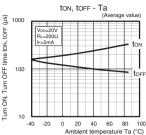
G3VM-41PR12/41PR10/41PR11

(kg)

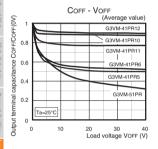
E 10

1000





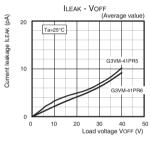
Output terminal capacitance vs. Load voltage



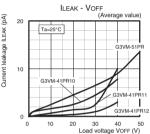
●Current leakage vs. Load voltage

-40 -20





G3VM-41PR12/41PR10/41PR11/51PR



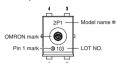
■Appearance / Terminal Arrangement / Internal Connections

Appearance

USOP (Ultra Small Outline Package)

G3VM-41PR\(\sigma/51PR\)

USOP 4-pin



* Actual model name marking for

| each model | |
|-------------|---------|
| Model | Marking |
| G3VM-41PR12 | 4PC |
| G3VM-41PR6 | 4P6 |
| G3VM-41PR10 | 4PA |
| G3VM-41PR11 | 4PB |
| G3VM-41PR5 | 4P5 |
| G3VM-51PR | 5P0 |
| | |

●Terminal Arrangement/Internal Connections (Top View)



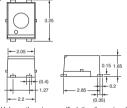
Note: 1. The actual product is marked differently from the image shown here. Note: 2, "G3VM" does not appear in the model number on the Relay.

■Dimensions (Unit: mm)

Surface-mounting Terminals

Weight: 0.03 g





Unless otherwise specified, the dimensional tolerance is ± 0.2 mm.

Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Unless otherwise specified, the dimensional tolerance is ± 0.2 mm.

■Approved Standards

UL recognized 💫



| Approved Standards | Contact form | File No. |
|--------------------|-----------------|----------|
| UL recognized | 1a (SPST-NO) | E80555 |

Note: The actual product is marked differently from the image shown here.

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

MOS FET Relays VSON, Low-output-capacitance and Low-ON-resistance Type (with Low C x R)

World's smallest class New VSON Package with Low Output Capacitance and Low ON Resistance



• G3VM-21UR10: Low C \times R = 2.4 pF· Ω , Coff (standard) = 0.8 pF,

Ron (standard) = 3 Ω

• G3VM-21UR1: Low C \times R = 4 pF- Ω , Coff (standard) = 5 pF,

Ron (standard) = 0.8 Ω

• G3VM-21UR11: Low C \times R = 7.2 pF· Ω , Coff (standard) = 40 pF,

Ron (standard) = 0.18 Ω



Note: The actual product is marked differently from the image shown here.

3. Package

U: VSON 4-pin

RoHS Compliant

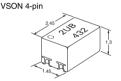
■Application Examples

· Semiconductor test equipment

- Communication equipment
- Test & measurement equipment
- Data loggers

■Package (Unit: mm, Average)

Li donage (onit: initi, Averag



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

 1. Load Voltage
 2. Contact form

 2: 20 V
 1: 1a (SPST-NO)

4. Additional functions 5. Other informations

R: Low On-resistance When specifications overlap, serial code

is added in the recorded order.

■Ordering Information

| | | | | Continuous | Tape cut p | oackaging | Tape packaging | |
|---------|-----------------|-------------------------------|--------------------------------|--------------|-------------|--------------------------------|-------------------|--------------------------------|
| Package | Contact form | Terminals | Load voltage (peak value) * | load current | Model | Minimum package quantity | Model | Minimum package quantity |
| | 1a (SPST-NO) | Surface-mounting Terminals | 20 V | 200 mA | G3VM-21UR10 | | G3VM-21UR10(TR05) | |
| VSON4 | | | | 450 mA | G3VM-21UR1 | 1 pc. | G3VM-21UR1(TR05) | 500 pcs. |
| Ì | (0. 0. 110) | | | 1,000 mA | G3VM-21UR11 | | G3VM-21UR11(TR05) | |

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number. Tape-cut VSONs are packaged without humidity resistance. Use manual soldering to mount them. Refer to common precautions.

* The AC peak and DC value are given for the load voltage and continuous load current.

S G3VM-ZIUR

■Absolute Maximum Ratings (Ta = 25°C)

G3VM-21UR

| | Item | Symbol | G3VM-21UR10 | G3VM-21UR1 | G3VM-21UR11 | Unit | Measurement conditions | |
|-------|--------------------------------------|-------------------|-------------|-------------|-------------|-------------------------------|-------------------------------|--|
| | LED forward current | lF | | 30 | | mA | | |
| Input | LED forward current reduction rate | ΔIF/°C | | -0.3 | | mA/°C | Ta≥25°C | |
| ᆸ | LED reverse voltage | VR | | 5 | | V | | |
| | Connection temperature | TJ | | 125 | °C | | | |
| | Load voltage (AC peak/DC) | Voff | 20 | | | ٧ | | |
| = | Continuous load current (AC peak/DC) | lo | 200 | 450 | 1,000 | mA | | |
| utput | ON current reduction rate | Δlo/°C | -2 | -4.5 | -10 | mA/°C | Ta≥25°C | |
| 0 | Pulse ON current | lop | 0.6 | 1.3 | 3 | Α | t=100 ms, Duty=1/10 | |
| | Connection temperature | TJ | | 125 | | °C | | |
| Di | electric strength between I/O * | V _I -o | | 300 | | Vrms | AC for 1 min | |
| An | Ambient operating temperature | | | -40 to +85 | | °C | With no icing or condensation | |
| An | Ambient storage temperature | | | -40 to +125 | °C | with no iding of condensation | | |
| Sc | ldering temperature | - | | 260 | | °C | 10 s | |

The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the

■Electrvical Characteristics (Ta = 25°C)

| _ | | | | | | | | | |
|--------|--|--------|---------|-------------|-------------|-------------|------|--|--|
| | Item | Symbol | | G3VM-21UR10 | G3VM-21UR1 | G3VM-21UR11 | Unit | Measurement conditions | |
| | | | Minimum | | 1.1 | | | | |
| | LED forward voltage | VF | Typical | | 1.27 | | V | IF=10 mA | |
| | | | Maximum | | 1.4 | | | | |
| Ħ | Reverse current | lR | Maximum | | 10 | | μΑ | V _R =5 V | |
| Input | Capacitance between terminals | Ст | Typical | | 30 | | pF | V=0, f=1 MHz | |
| | T: 150/ 1 1 | | Typical | 1 | 0.6 | - | | | |
| | Trigger LED forward current | İFT | Maximum | | 3 | | mA | Io=100 mA | |
| | Release LED forward current | IFC | Minimum | | 0.1 | | mA | Ioff=10 μA | |
| | Maximum resistance with output | Ron | Typical | 3 | 0.8 | 0.18 | Ω | IF=5 mA, t<1 s, | |
| | ON | HON | Maximum | 5 | 1.2 | 0.22 | 22 | lo=Continuous load current ratings | |
| Output | Current leakage when the relay is open | ILEAK | Maximum | | 1 | | | Voff=20 V | |
| O | | | Typical | 0.8 | 5 | 40 | - | V 0 / 400 MIL + 4 | |
| | Capacitance between terminals | Coff | Maximum | 1.1 | 12 | - | pF | V=0, f=100 MHz, t<1 s | |
| Ca | pacitance between I/O terminals | Cı-o | Typical | 1 | | 0.4 | pF | f=1 MHz, Vs=0 V | |
| | sulation resistance between I/O minals | Rı-o | Typical | | 108 | | МΩ | Vi-o=500 VDC, RoH≤60% | |
| т | rn-ON time | 4 | Typical | 0.05 | 0.05 0.17 - | | | | |
| Tu | m-ON time | ton | Maximum | 0.2 0.4 2 | | 2 | | I _F =5 mA, R _L =200 Ω, | |
| т | rn-OFF time | 4 | Typical | 0.0 | 02 | - | ms | VDD=10 V * | |
| ıu | III-OFF UIIIE | toff | Maximum | 0.2 | 0.4 | 1 | | | |

Turn-ON and Turn-OFF Times



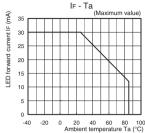
■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

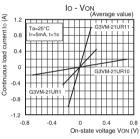
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions

| Laori italii oli tillo ilot lo ari illacperiat | one condition, so | it io not oimatan | codery dutiery deve | nai conditions. | | | | |
|--|-------------------|-------------------|---------------------|-----------------|-------------|------|--|--|
| Item | Symbol | | G3VM-21UR10 | G3VM-21UR1 | G3VM-21UR11 | Unit | | |
| Load voltage (AC peak/DC) | VDD | Maximum | | V | | | | |
| | | Minimum | | 5 | | | | |
| Operating LED forward current | l _F | Typical | | mA | | | | |
| | | Maximum | | IIIA | | | | |
| Continuous load current (AC peak/DC) | lo | Maximum | 200 | 450 | 1,000 | | | |
| Ambient operating temperature | Ta | Minimum | -20 | | | °C | | |
| Ambient operating temperature | I d | Maximum | | C | | | | |

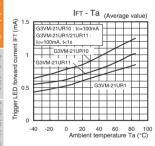
LED forward current vs. Ambient temperature



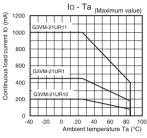
Continuous load current vs. On-state voltage



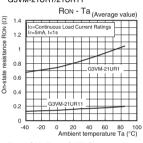
Trigger LED forward current vs. Ambient temperature



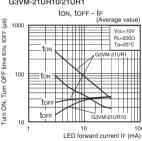
Continuous load current vs. Ambient temperature



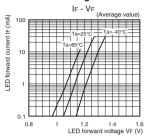
●On-state resistance vs. Ambient temperature G3VM-21UR1/21UR11



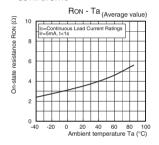
●Turn ON, Turn OFF time vs. LED forward current G3VM-21UR10/21UR1



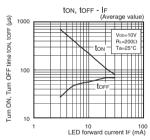
LED forward current vs. LED forward voltage



G3VM-21UR10

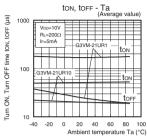


G3VM-21UR11

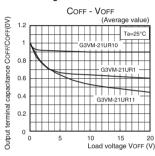


●Turn ON, Turn OFF time vs. Ambient temperature G3VM-21UR10/21UR1

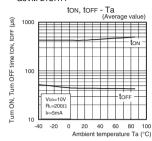
G3VM-21UR



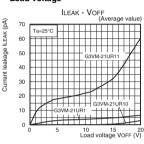
Output terminal capacitance vs. Load voltage



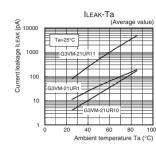
G3VM-21UR11



Current leakage vs. Load voltage



Current leakage vs. Ambient temperature



●Appearance

VSON (Very Small Outline Non-leaded)

VSON 4-pin



* Actual model name marking for

■Appearance / Terminal Arrangement / Internal Connections

| each model | each model | | | | | | | |
|-------------|------------|--|--|--|--|--|--|--|
| Model | Marking | | | | | | | |
| G3VM-21UR10 | 2UA | | | | | | | |
| G3VM-21UR1 | 2U1 | | | | | | | |
| G3VM-21UR11 | 2UB | | | | | | | |

Terminal Arrangement/Internal Connections (Top View)



Note: 1. The actual product is marked differently from the image shown here.

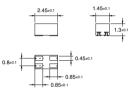
Note: 2. "G3VM" does not appear in the model number on the Relay.

■Dimensions (Unit: mm)

Surface-mounting Terminals

Weight: 0.01 g





Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Unless otherwise specified, the dimensional tolerance is ± 0.1 mm.

Note: The actual product is marked differently from the image shown here.

■Approved Standards

Applying for UL recognition

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

G3VM−41UR□/51**ι**

MOS FET Relays VSON, Low-output-capacitance and Low-ON-resistance Type (with Low C x R)

World's smallest class New VSON Package with Low Output Capacitance and Low ON Resistance

- . Load voltage: 40 V or 50 V
- G3VM-41UR12: Low C \times R = 4.5 pF· Ω , Coff (standard) = 0.3 pF,
 - Ron (standard) = 15 Ω
- G3VM-41UR10: Low C \times R = 5.4 pF· Ω , Coff (standard) = 0.45 pF, Ron (standard) = 12 Ω
- G3VM-41UR11: Low C \times R = 4.9 pF· Ω , Coff (standard) = 0.7 pF,
 - Ron (standard) = 7Ω
- G3VM-51UR: Low $C \times R = 12 pF \cdot \Omega$, Coff (standard) = 12 pF,

Ron (standard) = 1 Ω



Note: The actual product is marked differently from the image shown here.

RoHS Compliant

■Application Examples

- Semiconductor test equipment
- Communication equipment
- Test & measurement equipment
- Data loggers

■Package (Unit: mm, Average)

VSON 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM- 1 2 3 4 5

- 1. Load Voltage 4: 40 V
- 5: 50 V
- 4. Additional functions
- R: Low On-resistance
- 2. Contact form
 - 1: 1a (SPST-NO)
- 3. Package
- U: VSON 4-pin
- 5. Other informations

When specifications overlap, serial code is added in the recorded order.

■Ordering Information

| | | | | Continuous | Tape cut p | oackaging | Tape packa | ging |
|---------|--------------|-------------------------------|--------------------------------|--------------|-------------|--------------------------------|-------------------|--------------------------------|
| Package | Contact form | Terminals | Load voltage (peak value) * | load current | Model | Minimum package quantity | Model | Minimum package quantity |
| | | Surface-mounting Terminals | 40 V | 100 mA | G3VM-41UR12 | 1 pc. | G3VM-41UR12(TR05) | 500 pcs. |
| VSON4 | 1a | | | 120 mA | G3VM-41UR10 | | G3VM-41UR10(TR05) | |
| V301V4 | (SPST-NO) | | | 140 mA | G3VM-41UR11 | | G3VM-41UR11(TR05) | |
| | | | 50 V | 300 mA | G3VM-51UR | | G3VM-51UR(TR05) | |

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number. Tape-cut VSONs are packaged without humidity resistance. Use manual soldering to mount them. Refer to common precautions.

^{*} The AC peak and DC value are given for the load voltage and continuous load current.

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | Symbol | G3VM-41UR12 | G3VM-41UR10 | G3VM-41UR11 | G3VM-51UR | Unit | Measurement conditions |
|--------|--------------------------------------|------------------|-------------|-------------|-------------|-----------|-------|-------------------------------|
| | LED forward current | lF | | 3 | 0 | | mA | |
| Ħ | LED forward current reduction rate | ΔIF/°C | | -(|).3 | | mA/°C | Ta≥25°C |
| Input | LED reverse voltage | VR | | ţ | 5 | | V | |
| | Connection temperature | TJ | | 1: | °C | | | |
| | Load voltage (AC peak/DC) | Voff | | 40 | | | V | |
| = | Continuous load current (AC peak/DC) | lo | 100 | 120 | 140 | 300 | mA | |
| Output | ON current reduction rate | Δlo/°C | -1.0 | -1.2 | -1.4 | -3 | mA/°C | Ta≥25°C |
| 0 | Pulse ON current | lop | 300 | 360 | 420 | 900 | mA | t=100 ms, Duty=1/10 |
| | Connection temperature | TJ | | 1: | 25 | | °C | |
| D | ielectric strength between I/O * | V _{I-O} | | 30 | 00 | | Vrms | AC for 1 min |
| Α | mbient operating temperature | Ta | | -40 t | o +85 | | °C | With no icing or condensation |
| Α | mbient storage temperature | Tstg | | -40 to | +125 | | °C | with no iding of condensation |
| S | oldering temperature | 1 | | 20 | 60 | | °C | 10 s |

The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

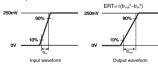
■Electrical Characteristics (Ta = 25°C)

| | Item | Symbol | | G3VM-41UR12 | G3VM-41UR10 | G3VM-41UR11 | G3VM-51UR | Unit | Measurement conditions | |
|--------|---|--------|---------|-------------|-------------|-------------|-----------|----------------------------|------------------------------------|--|
| | | | Minimum | | 1 | .1 | | | | |
| | LED forward voltage | VF | Typical | | 1. | 27 | | V | IF=10 mA | |
| | | | Maximum | | 1 | .4 | | | | |
| Input | Reverse current | IR | Maximum | | 1 | 0 | | μΑ | V _R =5 V | |
| 드 | Capacitance between terminals | Ст | Typical | | 3 | 0 | | pF | V=0, f=1 MHz | |
| | Trigger LED forward current | IFT | Typical | 0.9 | - | 0.7 | - | mA | lo=100 mA | |
| | Trigger LLD forward current | IF1 | Maximum | | ; | 3 | | IIIA | 10=100 HIA | |
| | Release LED forward current | IFC | Minimum | | 0 | .1 | | mA | Ioff=10 μA | |
| | Maximum resistance with | Bon | Typical | 15 | 12 | 7 | 1 | Ω | IF=5 mA, t<1 s, | |
| | output ON | HON | Maximum | 20 | 14 | 10 | 1.5 | 32 | Io=Continuous load current ratings | |
| Dutput | Current leakage when the relay is open | ILEAK | Maximum | | | 1 | nA | Voff =Load voltage ratings | | |
| | 0 1 1 1 1 1 | Coff | Typical | 0.3 | 0.45 | 0.7 | 12 | pF | V=0, f=100 MHz, t<1 s | |
| | Capacitance between terminals | COFF | Maximum | 0.6 | 0.8 | 1.3 | 20 | pr | V=0, I=100 MH2, t<1 S | |
| Ca | pacitance between I/O terminals | Cı-o | Typical | | | 1 | | pF | f=1 MHz, Vs=0 V | |
| | sulation resistance between I/O minals | R⊩o | Typical | | 1 | O8 | | МΩ | Vi-o=500 VDC, RoH≤60% | |
| т | rn-ON time | ton | Typical | 0.05 | - | 0.06 | - | | | |
| Tu | III-ON time | ION | Maximum | | 0.2 | | 0.5 | ms | IF=5 mA, RL=200 Ω, | |
| т | rn-OFF time | torr | Typical | 0.03 | - | 0.03 | = | IIIS | VDD=20 V *1 | |
| Tu | III-OI I IIIIIe | IOFF | Maximum | 0.2 | 0.3 | 0.2 | 0.4 | | | |
| Ea | uivalent rice time | FRT | Typical | | - | | 40 | | IF=5 mA, VDD=0.25 V, | |
| ⊏q | Equivalent rise time | | Maximum | | - | | 90 | ps | Tr(in)=25 ps *2 | |

*1. Turn-ON and Turn-OFF Times



*2. Equivalent Rise Time



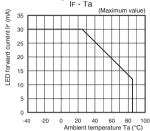
■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

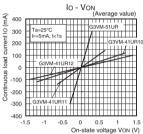
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

| Item | Symbol | | G3VM-41UR12 | G3VM-41UR10 | G3VM-41UR11 | G3VM-51UR | Unit | | | |
|--------------------------------------|--------|---------|-------------|-------------|-------------|-----------|------|--|--|--|
| Load voltage (AC peak/DC) | VDD | Maximum | | 32 40 | | | | | | |
| | | Minimum | | 5 | | | | | | |
| Operating LED forward current | IF | Typical | | | mA | | | | | |
| | ı | Maximum | | 20 | | | | | | |
| Continuous load current (AC peak/DC) | lo | Maximum | 100 | 120 | 140 | 300 | | | | |
| Ambient operating temperature | Ta | Minimum | | °C | | | | | | |
| Ambient operating temperature | ıa | Maximum | | 6 | 5 | | Ü | | | |

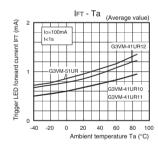
LED forward current vs. Ambient temperature



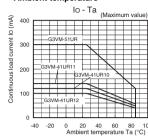
Continuous load current vs. On-state voltage



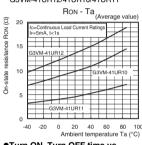
Trigger LED forward current vs. Ambient temperature



Continuous load current vs. Ambient temperature

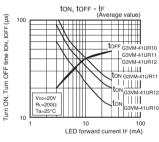


On-state resistance vs. Ambient temperature G3VM-41UR12/41UR10/41UR11

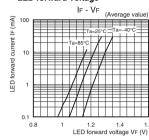


Turn ON, Turn OFF time vs. LED forward current

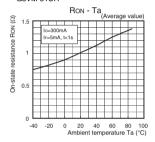
G3VM-41UR12/41UR10/41UR11



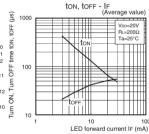
LED forward current vs. LED forward voltage



G3VM-51UR



G3VM-51UR



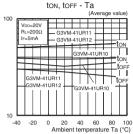
TOFF.

Ď, Turn OFF time 1

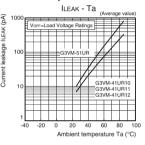
Furn ON,

●Turn ON, Turn OFF time vs.

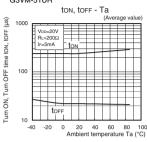
Ambient temperature G3VM-41UR12/41UR10/41UR11



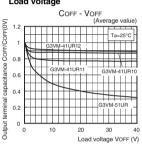
Current leakage vs. Ambient temperature



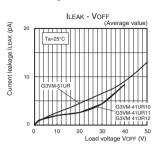
G3VM-51UR



Output terminal capacitance vs. Load voltage



●Current leakage vs. Load voltage



■Appearance / Terminal Arrangement / Internal Connections

Appearance

VSON (Very Small Outline Non-leaded)

VSON 4-pin



* Actual model name marking for

| each model | |
|-------------|---------|
| Model | Marking |
| G3VM-41UR12 | 4UC |
| G3VM-41UR10 | 4UA |
| G3VM-41UR11 | 4UB |
| G3VM-51UR | 5110 |

●Terminal Arrangement/Internal Connections (Top View)



Note: 1. The actual product is marked differently from the image shown here. Note: 2. "G3VM" does not appear in the model number on the Relay.

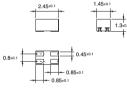
G3VM-41UR\(\sigmu/51UR\)

■Dimensions (Unit: mm)

Surface-mounting Terminals

Weight: 0.01 g





Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Unless otherwise specified, the dimensional tolerance is ± 0.1 mm.

Note: The actual product is marked differently from the image shown here.

■Approved Standards

Applying for UL recognition

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

G3VM-41QR10/61QR

MOS FET Relays S-VSON 4-pin, Low-output-capacitance and Low-ON-resistance Type (with Low C x R)

World's smallest class * New S-VSON Package with Low Output Capacitance and Low ON Resistance

- Load voltage: 40 V / 60 V.
- G3VM-41QR10: Low C \times R = 4.95 pF- Ω , Coff (standard) = 0.45 pF, Rox (standard) = 11 Ω
- G3VM-61QR: Low C \times R = 13.2 pF· Ω , Coff (standard) = 12 pF, Rox (standard) = 1.1 Ω
- High Ambient operating temperature: -40°C to +110°C

* As of March 2018 Survey by OMRON.



Note: The actual product is marked differently from the image shown here.

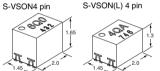
RoHS Compliant

■Application Examples

- Semiconductor test equipment
- Test & measurement equipment
- Communication equipment
- Data loggers

■Package (Unit: mm, Average)

= aonago (oma min, Averago)



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

1. Load Voltage

4: 40V 6: 60 V

4. Additional functions
R: Low On-resistance

2. Contact form Package type 3. Package type

1: 1a (SPST-NO)

Q: S-VSON 4 pin S-VSON(L)* 4 pin

* (L): Low profile type

5. Other informations

When specifications overlap, serial code is added in the recorded order.

■Ordering Information

| | | Contact form | Terminals | | Continuous load current (peak value) # | Packing/ | Гаре cut | Packing/Tape & reel | | |
|---|--------------|--------------|------------------|--------------------------------|--|-------------|--------------------------------|---------------------|--------------------------------|--|
| | Package type | | | Load voltage (peak value) * | | Model | Minimum package quantity | Model | Minimum package quantity | |
| ſ | S-VSON4(L)4 | 1a | Surface-mounting | 40 V | 120 mA | G3VM-41QR10 | 1 pc. | G3VM-41QR10 (TR05) | 500 pcs. | |
| | S-VSON4 | (SPST-NO) | Terminals | 60 V | 400 mA | G3VM-61QR | i pc. | G3VM-61QR (TR05) | 300 pcs. | |

^{*} The AC peak and DC value are given for the load voltage and continuous load current.

Note: When ordering tape packing, add "(TR05)" (500 pcs/reel) to the model number.

Ask your OMRON representative for orders under 500 pcs. We can supply products with the tape already cut. Tape-cut S-VSON is packaged without humidity resistance. Use manual soldering to mount them. Refer to common pre

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | Symbol | G3VM-41QR10 | G3VM-61QR | Unit | Measurement conditions |
|--------|--------------------------------------|------------------|-------------|-----------|-------|-------------------------------|
| | | Syllibol | G3VW-41QH10 | G3VW-01QH | Ollit | weasurement conditions |
| | LED forward current | lF | 30 | | mA | |
| Input | LED forward current reduction rate | ΔIF/°C | -(| -0.3 | | Ta≥25°C |
| ᆸ | LED reverse voltage | VR | 6 | | V | |
| | Connection temperature | TJ | 12 | 25 | °C | |
| | Load voltage (AC peak/DC) | Voff | 40 | 60 | V | |
| = | Continuous load current (AC peak/DC) | lo | 120 | 400 | mA | |
| Output | ON current reduction rate | ∆lo/°C | -1.2 | -4 | mA/°C | Ta≥25°C |
| 0 | Pulse ON current | Іор | 0.36 | 1.2 | Α | t = 100 ms, Duty = 1/10 |
| | Connection temperature | TJ | 12 | 25 | °C | |
| Di | electric strength between I/O * | V _{I-O} | 50 | 00 | Vrms | AC for 1 min |
| An | Ambient operating temperature | | -40 to | +110 | °C | With no icing or condensation |
| An | Ambient storage temperature | | -40 to | +125 | °C | |
| Sc | Idering temperature | - | 26 | 60 | °C | 10 s |

The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

| | Item | Symbol | | G3VM-41QR10 | G3VM-61QR | Unit | Measurement conditions | |
|--------|--|--------|---------|-------------|---------------|------|---|--|
| | | | Minimum | 1. | 1 | | | |
| | LED forward voltage | VF | Typical | 1.2 | 21 | V | IF = 10 mA | |
| | | | Maximum | 1. | 4 | | | |
| Input | Reverse current | IR | Maximum | 10 | 0 | μА | V _R = 5 V | |
| 트 | Capacity between terminals | Ст | Typical | 3 | 0 | pF | V = 0, f = 1 MHz | |
| | Trigger LED forward current | let | Typical | 0.8 | - | mA | lo = 100 mA | |
| | Trigger LED forward current | IFT | Maximum | 3 | 1 | IIIA | 10 = 100 IIIA | |
| | Release LED forward current | IFC | Minimum | 0. | 1 | mA | Ioff = 10 μA | |
| | | | Typical | 11 | 1.1 | | G3VM-41QR10: IF = 5 mA, | |
| | Maximum resistance with output ON | Ron | Maximum | 14 | 1.5 | Ω | t<1s, lo = 120 mA G3VM-61QR: I _F = 5 mA, t<1s, lo = 400 mA | |
| Output | Current leakage when the relay is open | ILEAK | Maximum | 1 | 1000 (1) | nA | G3VM-41QR10: Voff = 40 V G3VM-61QR: Voff = 60 V (Voff = 50 V) | |
| | Consolite between townings | _ | Typical | 0.45 | 12 | | V = 0.f = 100 MHz.t<1s | |
| | Capacity between terminals | Con | Maximum | 0.8 | 20 | pF | V = 0,1 = 100 MHz, t<18 | |
| Ca | pacity between I/O terminals | CI-o | Typical | 1 | 0.9 | pF | f = 1 MHz, Vs = 0V | |
| | ulation resistance between I/O minals | Ri-o | Typical | 10 |)8 | ΜΩ | Vi-o = 500 VDC, RoH≤60% | |
| | | | Typical | 0.08 | - | | | |
| Tur | n-ON time | ton | Maximum | 0.2 | 0.5 (0.25) | ms | I _F = 5 mA, R _L = 200 Ω, V _{DD} = 20 V | |
| | | | Typical | 0.04 | - | | (I _F = 10 mA, R _L = 200 Ω, V _{DD} = 20 V) * | |
| Tur | n-OFF time | toff | Maximum | 0.3 | 0.3 (0.3) | ms | V00 = 20 V) 4- | |

Turn-ON and Turn-OFF Times





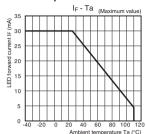
■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

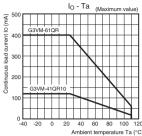
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

| Edon tom on this list is an independe | on contains | 11, 00 11 10 11 | ot omnanancou | by battery bever | ai condit |
|---------------------------------------|--------------------|-----------------|---------------|------------------|-----------|
| Item | Vob Maximum 32 | | G3VM-41QR10 | 1QR10 G3VM-61QR | |
| Load voltage (AC peak/DC) | VDD | Maximum | 32 | 48 | V |
| | | Minimum | ŧ | 5 | |
| Operating LED forward current | l _F | Typical | 7. | mA | |
| | | Maximum | 2 | 0 | IIIA |
| Continuous load current (AC peak/DC) | lo | Maximum | 120 | 400 | |
| Ambient operating temperature | Ta | Minimum | -20 | | °C |
| Ambient operating temperature | I a | Maximum | 85 | 100 | |

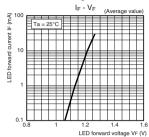
LED forward current vs. Ambient temperature



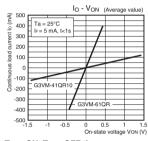
Continuous load current vs. Ambient temperature



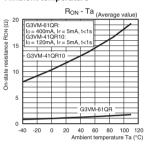
LED forward current vs. LED forward voltage



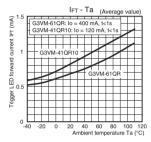
Continuous load current vs. On-state voltage



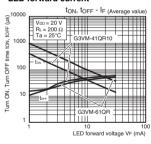
On-state resistance vs. Ambient temperature



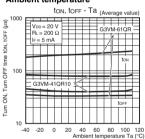
Trigger LED forward current vs.
 Ambient temperature



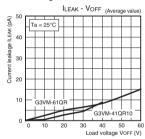
•Turn ON, Turn OFF time vs. LED forward current



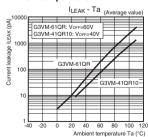
●Turn ON, Turn OFF time vs. Ambient temperature



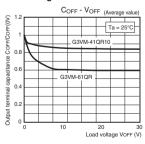
 Current leakage vs. Load voltage



Current leakage vs. Ambient temperature



Output terminal capacitance vs. Load voltage



■Appearance / Terminal Arrangement / Internal Connections

■Appearance

S-VSON (Super-Very Small Outline Non-leaded)

S-VSON4 pin / S-VSON(L)4 pin Model name *

Model name *

* Actual model name marking for

| each model | |
|------------|---------|
| Model | Marking |
| G3VM-41QR | 10 4QA |
| G3VM-61QR | 6Q0 |

■Terminal Arrangement/Internal Connections (Top View)



Note 1. The actual product is marked differently from the image shown here.

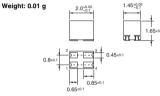
2. "G3VM" does not appear in the model number on the Relay.

■Dimensions (Unit: mm)

S-VSON (Super-Very Small Outline Non-leaded) S-VSON4 pin

Surface-mounting Terminals

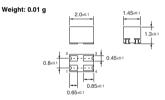




Note: The actual product is marked differently from the image shown here. S-VSON(L)4 pin

Surface-mounting Terminals





Note: The actual product is marked differently from the image shown here.

■Safety Precautions

• Refer to "Common Precautions" for all G3VM models.

Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Unless otherwise specified, the dimensional tolerance is \pm 0.1 mm.

Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Unless otherwise specified, the dimensional tolerance is ± 0.1 mm.

MOS FET Relays SSOP, Small and High-load-voltage Type

MOS FET Relays in SSOP packages for high load voltages

• Load voltage: 60 V, 80 V, or 100 V

RoHS Compliant

■Application Examples

- Semiconductor test equipment
- Test & Measurement equipment
- Communication equipment
- Data loggers





Note: The actual product is marked differently from the image shown here.

■Package

(Unit: mm, Average)

■Model Number Legend

SSOP 4-pin



Note: The actual product is marked differently from the image shown here.

G3VM-

1 2 3 4

1. Load Voltage 2. Contact form

m 3. Package

1 : 1a (SPST-NO)

L: SSOP 4-pin

8:80 V 10:100 V

4. Additional functions
R: Low ON resistance

5. Other informations

When specifications overlap, serial code is added in the recorded order.

■Ordering Information

| | Contact | | Load voltage | Continuous load | Tape cut | packaging | Tape packaging | | |
|---------|-----------------|-------------------------------|----------------|---------------------------|------------|-----------------------------|------------------|-----------------------------|--|
| Package | form | Terminals | (peak value) * | current (peak value) * | Model | Minimum package quantity | Model | Minimum package quantity | |
| | 1a (SPST-NO) | Surface-mounting Terminals | 60 V | 400 mA | G3VM-61LR | | G3VM-61LR(TR05) | | |
| SSOP4 | | | 80 V | 120 mA | G3VM-81LR | 1 pc. | G3VM-81LR(TR05) | 500 pcs. | |
| | | | 100 V | 80 mA | G3VM-101LR | | G3VM-101LR(TR05) | | |

* The AC peak and DC value are given for the load voltage and continuous load current

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number.

Tape-cut SSOPs are packaged without humidity resistance. Use manual soldering to mount them. Refer to common precautions.

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | Symbol | G3VM-61LR | G3VM-81LR | G3VM-101LR | Unit | Measurement conditions |
|--------|--------------------------------------|-------------------|-----------|-------------|------------|------------------------------|-------------------------------|
| | LED forward current | lF | | 50 | | mA | |
| Ħ | LED forward current reduction rate | ΔIF/°C | | -0.5 | | mA/°C | Ta ≥ 25°C |
| dul | LED reverse voltage | VR | | 5 | | ٧ | |
| | Connection temperature | TJ | | 125 | | °C | |
| | Load voltage (AC peak/DC) | Voff | 60 | 80 | 100 | V | |
| 5 | Continuous load current (AC peak/DC) | lo | 400 | 120 | 80 | mA | |
| Output | ON current reduction rate | Δlo/°C | -4 | -1.2 | -0.8 | mA/°C | Ta ≥ 25°C |
| 0 | Pulse ON current | lop | 1200 | 360 | 240 | mA | t=100 ms, Duty=1/10 |
| | Connection temperature | TJ | | 125 | | °C | |
| Di | electric strength between I/O * | V _I -O | | 1500 | | Vrms | AC for 1 min |
| Αı | Ambient operating temperature | | | -20 to +85 | | °C | With no icing or condensation |
| Αı | mbient storage temperature | Tstg | | -40 to +125 | °C | will no long of condensation | |
| S | oldering temperature | - | | 260 | | °C | 10 s |

^{*} The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

R

■Electrical Characteristics (Ta = 25°C)

G3VM-61LR/81LR/101LR

| | Item | Symbol | | G3VM-61LR | G3VM-81LR | G3VM-101LR | Unit | Measurement conditions | |
|--------|--|--------|---------|-----------|-----------|------------|--------------|---|--|
| | | | Minimum | | 1.0 | | | | |
| | LED forward voltage | VF | Typical | | 1.15 | | ٧ | IF=10 mA | |
| | | | Maximum | | 1.3 | | | | |
| | Reverse current | IR | Maximum | | 10 | | μА | VR=5 V | |
| nbnt | Capacitance between terminals | Ст | Typical | | 15 | pF | V=0, f=1 MHz | | |
| _ | Trigger LED forward | let | Typical | 2 | 2 | 1 | mA | G3VM-61LR : lo=100 mA G3VM-81LR : lo=120 mA | |
| | current | IFI | Maximum | | 5 | | | G3VM-101LR : lo=80 mA | |
| | Release LED forward current | IFC | Minimum | 0.2 | 0.1 | 0.2 | mA | G3VM-61LR/81LR : IoFF=10 μA G3VM-101LR : IoFF=1 μA | |
| | Maximum resistance with | Bon | Typical | 1 | 7.5 | 8 | Ω | G3VM-61LR: IF=5 mA, Io=Continuous load current ratings G3VM-81LR/101LR: IF=10 mA. | |
| Output | output ON | TION | Maximum | 1.5 | 12 | 14 | 32 | Io=Continuous load current ratings, t=10 ms | |
| Out | Current leakage when the relay is open | İLEAK | Maximum | 1,000 | 0 | .2 | nA | G3VM-61LR : Voff=60 V G3VM-81LR : Voff=80 V, Ta=60°C G3VM-101LR : Voff=80 V | |
| | Capacitance between | COFF | Typical | 20 | 5 | 6 | pF | V=0, f=100 MHz, t<1 s | |
| | terminals | COFF | Maximum | 30 | 7 | 8 | PΓ | V=0, I=100 WH2, I<1 S | |
| | pacitance between I/O minals | Cı-o | Typical | 0.3 | 0.8 | 0.6 | pF | f=1 MHz, Vs=0 V | |
| Ins | sulation resistance between | Rı-o | Minimum | | 1000 | | МΩ | Vi-o=500 VDC, RoH≤60% | |
| I/C |) terminals | ni-0 | Typical | | 108 | | IVISZ | VI-0=300 VDC, R0H≤60% | |
| Tu | rn-ON time | ton | Typical | 0.3 0.1 | | | | G3VM-81LR: | |
| 10 | iii Oit iiiic | ION | Maximum | 1 | 0.25 | 0.3 | ms | IF=10 mA, RL=200 Ω, VDD=20 V | |
| Tu | rn-OFF time | torr | Typical | 0.2 | 0.15 | 0.1 | | G3VM-61LR/101LR : | |
| 10 | | LOFF | Maximum | 1 | 0.2 | 0.3 | | IF=5 mA, RL=200 Ω, VDD=20 V * | |

* Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

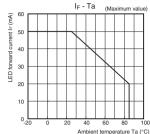
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions

| | | , | | | | | | |
|--------------------------------------|--------|---------|-----------|-----------|------------|------|--|--|
| Item | Symbol | | G3VM-61LR | G3VM-81LR | G3VM-101LR | Unit | | |
| Load voltage (AC peak/DC) | VDD | Maximum | 48 | 64 | 80 | V | | |
| Operating LED forward current | In | Minimum | | 10 | | | | |
| Operating LED forward current | IF. | Maximum | 20 | 3 | mA | | | |
| Continuous load current (AC peak/DC) | lo | Maximum | 400 | 120 | 80 | | | |
| Ambient operating temperature | Ta | Minimum | -20 | | | | | |
| Ambient operating temperature | 1a | Maximum | 70 | 6 | °C | | | |

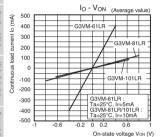
■Spacing and Insulation

| Item | Minimum | Unit |
|------------------------------|---------|------|
| Creepage distances | 2.5 | |
| Clearance distances | 2.5 | mm |
| Internal isolation thickness | 0.1 | |

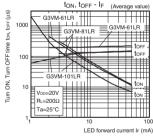
LED forward current vs. Ambient temperature



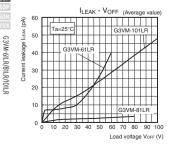
Continuous load current vs.
 On-state voltage



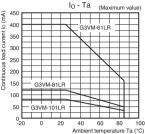
● Turn ON, Turn OFF time vs. LED forward current



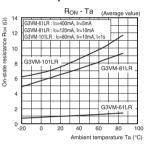
Current leakage vs.
 Ambient temperature



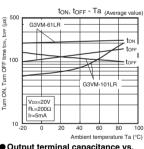
Continuous load current vs. Ambient temperature



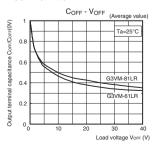
On-state resistance vs.
 Ambient temperature



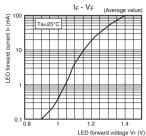
● Turn ON, Turn OFF time vs. Ambient temperature G3VM-61LR/101LR



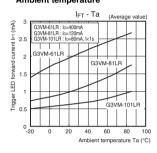
 Output terminal capacitance vs. Load voltage G3VM-61LR/81LR



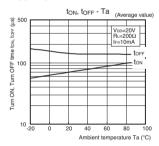
LED forward current vs. LED forward voltage



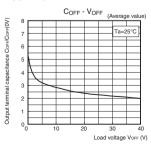
Trigger LED forward current vs.
 Ambient temperature



G3VM-81LR



G3VM-101LR



■Appearance / Terminal Arrangement / Internal Connections

Appearance

SSOP (Shrink Small Outline Package) SSOP 4-pin



* Actual model name marking for each model

| Model | Marking |
|------------|---------|
| G3VM-61LR | 610 |
| G3VM-81LR | 810 |
| G3VM-101LR | 101 |

Note: 1. The actual product is marked differently from the image shown here.

G3VM-61LR/81LR/101LR

Note: 2. "G3VM" does not appear in the model number on the Relay.

●Terminal Arrangement/ Internal Connections (Top View)

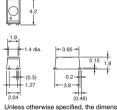


■Dimensions (Unit: mm)



Surface-mounting Terminals

Weight: 0.03 g



Unless otherwise specified, the dimensional tolerance is \pm 0.1 mm.

Actual Mounting Pad Dimensions (Recommended Value, TOP VIEW)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized 🔊

| Approved Standards | Contact form | File No. |
|--------------------|--------------|----------|
| UL (recognized) | 1a (SPST-NO) | E80555 |

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

G3VM-61PR-/71PR/81PR/101PR

MOS FET Relays USOP, Small and High-load-voltage Type

USOP Package with High Load voltage

- Load voltage: 60 V, 75 V, 80 V, or 100 V
- G3VM-61PR1: Low C \times R = 7 pF· Ω , Coff (standard) = 0.7 pF,

Ron (standard) = 10 Ω

RoHS Compliant



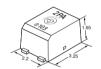
Note: The actual product is marked differently from the image shown here.

■Application Examples

- · Semiconductor test equipment
- Communication equipment
- Test & measurement equipment
- Data loggers

■Package (Unit : mm, Average)

USOP 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM- ... 1 2 3 4 5

1. Load Voltage

- 6: 60 V
- 7: 75 V
- 8: 80 V
- 10: 100 V

2. Contact form

- 1: 1a (SPST-NO)
- 4. Additional functions R: Low On-resistance

3. Package

- P: USOP 4-pin
- 5. Other informations

When specifications overlap, serial code is added in the recorded order.

■Ordering Information

| | | | | Continuous | Tape cut packaging | | Tape packaging | | |
|---------|-----------------|-------------------------------|-----------------------------|--------------|--------------------|-------|------------------|--------------------------------|--|
| Package | Contact form | Terminals | Load voltage (peak value) * | load current | load current | | Model | Minimum package quantity | |
| | | | 60 V | 120 mA | G3VM-61PR1 | | G3VM-61PR1(TR05) | 500 pcs. | |
| | | | | — 400 mA + | G3VM-61PR | | G3VM-61PR(TR05) | | |
| USOP4 | 1a (SPST-NO) | Surface-mounting Terminals | 75 V | | G3VM-71PR | 1 pc. | G3VM-71PR(TR05) | | |
| | (31-110) | r 31-NO) Tellillais | 80 V | 120 mA | G3VM-81PR | | G3VM-81PR(TR05) | | |
| | | | 100 V | 100 mA | G3VM-101PR | | G3VM-101PR(TR05) | | |

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number. Tape-cut USOPs are packaged without humidity resistance. Use manual soldering to mount them.

Refer to common precautions. * The AC peak and DC value are given for the load voltage and continuous load current.

■Absolute Maximum Ratings (Ta = 25°C)

G3VM-61PR\(\to\$/71PR/81PR/101PR\)

| | Item | Symbol | G3VM-61PR1 | G3VM-61PR | G3VM-71PR | G3VM-81PR | G3VM-101PR | Unit | Measurement conditions |
|--------|--------------------------------------|-------------------|------------|-----------|-------------|-----------|------------|-------|-------------------------------|
| | LED forward current | lF | | 50 | | | | | |
| Input | LED forward current reduction rate | ΔIF/°C | | -0.5 | | | | mA/°C | Ta≥25°C |
| ü | LED reverse voltage | VR | | | 5 | | | ٧ | |
| | Connection temperature | TJ | | | 125 | | | °C | |
| | Load voltage (AC peak/DC) | Voff | 6 | 60 | 75 | 80 | 100 | V | |
| = | Continuous load current (AC peak/DC) | lo | 120 | 40 | 00 | 120 | 100 | mA | |
| Output | ON current reduction rate | Δlo/°C | -1.2 | _ | -4 | -1.2 | -1 | mA/°C | Ta≥25°C |
| 0 | Pulse ON current | lop | 360 | 1,2 | 200 | 360 | 300 | mA | t=100 ms, Duty=1/10 |
| | Connection temperature | TJ | | • | 125 | | | °C | |
| D | electric strength between I/O * | V _I -o | | | 500 | | | Vrms | AC for 1 min |
| Α | Ambient operating temperature | | | | -40 to +85 | | | °C | With no icing or condensation |
| Α | nbient storage temperature | Tstg | | | -40 to +125 | | | °C | with no icing of condensation |
| S | oldering temperature | - | | | 260 | | | °C | 10 s |

The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

| Item | Symbol | | G3VM-61PR1 | G3VM-61PR | G3VM-71PR | G3VM-81PR | G3VM-101PR | Unit | Measurement conditions | | |
|--|--|--|--|--|-----------|--|--|--|---|------|------------|
| | | Minimum | | | 1.0 | | | | | | |
| LED forward voltage | VF | Typical | | 1.15 | | | | | IF=10 mA | | |
| | | Maximum | | | 1.3 | | | | | | |
| Reverse current | IR | Maximum | | | 10 | μΑ | VR=5 V | | | | |
| Capacitance between terminals | Ст | Typical | | | 15 | | | pF | V=0, f=1 MHz | | |
| Trigger LED feavord current | - | Typical | 1.0 | 0 | .5 | 0.6 | 0.5 | m A | Io=100 mA | | |
| riigger LED iorward current | IFI | Maximum | | | 3 | | | IIIA | 10=100 mA | | |
| Release LED forward current | IFC | Minimum | 0.1 | 0.2 | | 0.1 | | mΑ | Ioff=10 μA | | |
| · | | Typical | 10 | | 1 | 7 | 8 | | G3VM-61PR : IF=5 mA, | | |
| | Ron | Maximum | 15 1.5 | | 12 | 14 | Ω | lo=400 mA Others : IF=5 mA, lo=Continuous load current ratings, t<1 s | | | |
| Current leakage when the relay is open | ILEAK | Maximum | | 1 | | 0.02 | 0.2 | nΑ | Voff=Load voltage ratings | | |
| | | Typical | 0.7 | 20 | 30 | 5 | 6 | | G3VM-61PR : V=0, | | |
| Capacitance between terminals | Coff | Maximum | 1.3 | 30 | - | 7 | 8 | pF | f=1 MHz, t<1 s Others : V=0, f=100 MHz, t<1 s | | |
| acitance between I/O terminals | Cı-o | Typical | 0.4 | 0.3 | | 0.4 | | pF | f=1 MHz, Vs=0 V | | |
| ulation registance between I/O terminals | D. c | Maximum | | | 1000 | | | MO | Vi-o=500 VDC, RoH≤60% | | |
| isulation resistance between i/O terminals | | Typical | 108 | | | | | IVISZ | VI-0=300 VDG, NOH≤00% | | |
| Trum ON time | | Typical | 0.04 | 0.3 | 0.4 | 0.14 | 0.12 | | | | |
| I-ON UITIE | ION | Maximum | 0.2 | 0.5 | 2 | 0.5 | 0.3 | mo | IF=5 mA, RL=200 Ω, | | |
| Turn-OFF time | | OFF time topp | | Typical | 0.12 | 0.3 | 0.2 | 0.16 | 0.18 | 1115 | Vpp=20 V * |
| | LED forward voltage Reverse current Capacitance between terminals Trigger LED forward current Release LED forward current Maximum resistance with output ON Current leakage when the relay is open Capacitance between terminals | LED forward voltage Reverse current Capacitance between terminals CT Trigger LED forward current Release LED forward current IFT Release LED forward current Maximum resistance with output ON Current leakage when the relay is open LEAK Capacitance between terminals Coff Capacitance between I/O terminals Ci-o Ilation resistance between I/O terminals Ri-o | LED forward voltage Reverse current Reverse c | Minimum Typical Maximum Maximum Maximum Maximum Maximum Maximum Typical Maximum Maximum Maximum Maximum Typical Typi | VF | VF Minimum 1.0 1.15 Maximum 1.3 Maximum 1.3 Maximum 1.3 Maximum 1.3 Maximum 1.3 Maximum 1.5 1.5 Maximum 1.3 Maximum 1.3 Maximum 1.3 Maximum 1.3 Maximum 1.3 Maximum 1.3 Maximum 1.3 Maximum 1.3 Maximum 1.3 Maximum 1.3 Maximum 1.3 Maximum 1.3 Maximum 1.3 Maximum 1.3 Maximum 1.3 Maximum 1.3 1.5 Maximum 1.3 1.5 Maximum 1.3 1.5 Maximum 1.3 1.5 Maximum 1.3 1.5 Maximum 1.3 1.5 Maximum 1.3 1.5 1. | Minimum 1.0 Typical 1.15 Maximum 1.0 Typical 1.15 Maximum 1.0 Typical 1.15 Maximum 1.0 Typical Typical | VF | VF Minimum 1.0 V Maximum 1.15 V | | |

Turn-ON and Turn-OFF Times



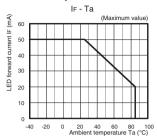
■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

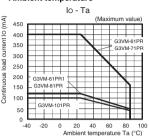
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

| Item | Symbol | | G3VM-61PR1 | G3VM-61PR | G3VM-71PR | G3VM-81PR | G3VM-101PR | Unit |
|--------------------------------------|----------|---------|-----------------|-----------|-------------|--------------|----------------|-------|
| item | Cyllibol | | GOVINI-OTT ITT | GOVINION | GOVIN-71111 | GOVIN-OTT II | GOVINI-TOTT II | Oilit |
| Load voltage (AC peak/DC) | VDD | Maximum | 48 | | 60 | 64 | 80 | V |
| | | Minimum | | | 5 | • | | |
| Operating LED forward current | lF | Typical | 7.5 | | | | | |
| | | Maximum | 20 | | | | | mA |
| Continuous load current (AC peak/DC) | lo | Maximum | 120 400 120 100 | | 100 | | | |
| Ambient operating temperature | Ta | Minimum | -20 | | | | | °C |
| Ambient operating temperature | ıa. | Maximum | | | 65 | | | U |

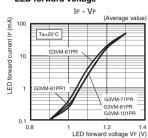
●LED forward current vs. Ambient temperature



Continuous load current vs. Ambient temperature

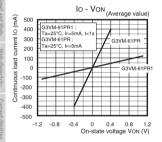


●LED forward current vs. LED forward voltage

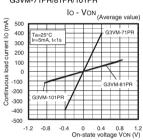


•Continuous load current vs. On-state voltage

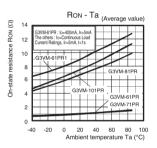
G3VM-61PR1/61PR



G3VM-71PR/81PR/101PR

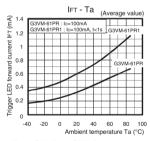


On-state resistance vs. Ambient temperature

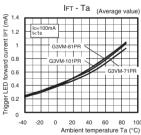


Trigger LED forward current vs. Ambient temperature

G3VM-61PR1/61PR



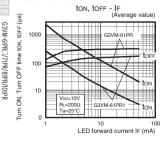
G3VM-71PR/81PR/101PR



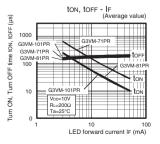
Turn ON, Turn OFF time vs. LED forward current

G3VM-61PR1/61PR

USOP



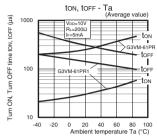
G3VM-71PR/81PR/101PR



G3VM-61PR: //71PR/81PR/101PR

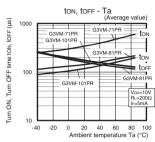
■Engineering Data

●Turn ON, Turn OFF time vs. Ambient temperature G3VM-61PR1/61PR

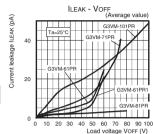


G3VM-71PR/81PR/101PR

G3VM-61PR\(\to\$/71PR/81PR/101PR\)

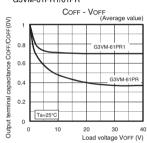


Current leakage vs. Load voltage

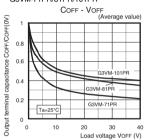


Output terminal capacitance vs. Load voltage

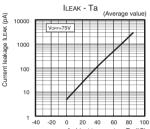




G3VM-71PR/81PR/101PR



●Current leakage vs. Ambient temperature G3VM-71PR

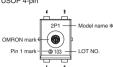


Ambient temperature Ta (°C)

■Appearance / Terminal Arrangement / Internal Connections

●Appearance

USOP (Ultra Small Outline Package) USOP 4-pin



 Actual model name marking for each model

| Marking |
|---------|
| 6P1 |
| 6P0 |
| 7P0 |
| 8P0 |
| AP0 |
| |



●Terminal Arrangement/Internal Connections (Top View)

Note: 1. The actual product is marked differently from the image shown here.

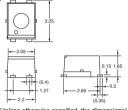
Note: 2. "G3VM" does not appear in the model number on the Relay.

■Dimensions (Unit: mm)

Surface-mounting Terminals

Weight: 0.03 g





Unless otherwise specified, the dimensional tolerance is ±0.2 mm.

Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Unless otherwise specified, the dimensional tolerance is ±0.2 mm.

Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized 💫

| Approved Standards | Contact form | File No. |
|--------------------|-----------------|----------|
| UL recognized | 1a (SPST-NO) | E80555 |

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

G3VM-61UR□/81UR□/101UR

MOS FET Relays VSON, Small and High-load-voltage Type

World's smallest class New VSON Package with High Load voltage

- Load voltage: 60 V, 80 V, or 100 V
- G3VM-61UR1: Low C \times R = 7 pF- Ω , Coff (standard) = 0.7 pF,

Ron (standard) = 10 Ω

RoHS Compliant



Note: The actual product is marked differently from the image shown here.

■Application Examples

- Semiconductor test equipment
- Communication equipment
- Test & measurement equipment
- Data loggers

■Package (Unit:mm, Average)

■Model Number Legend

VSON 4-pin



1. Load Voltage

6: 60 V

8: 80 V

10: 100 V

2. Contact form

1: 1a (SPST-NO)

4. Additional functions

R: Low On-resistance

3. Package

U: VSON 4-pin

5. Other informations

When specifications overlap, serial code is added in the recorded order.

Note: The actual product is marked differently from the image shown here.

■Ordering Information

| | | | | Continuous | | ackaging | Tape packa | iging |
|---------|-----------------|-------------------------------|--------------------------------|--------------------------------|------------|--------------------------------|------------------|--------------------------------|
| Package | Contact form | Terminals | Load voltage (peak value) * | load current (peak value) * | Model | Minimum package quantity | Model | Minimum package quantity |
| | | 60.1/ | 120 mA | G3VM-61UR1 | | G3VM-61UR1(TR05) | | |
| | _ | | 60 V | 400 mA | G3VM-61UR | | G3VM-61UR(TR05) | 500 pcs. |
| VSON4 | 1a (SPST-NO) | Surface-mounting Terminals | 80 V | 120 mA | G3VM-81UR | 1 pc. | G3VM-81UR(TR05) | |
| | (2. 2. 110) | | 50 V | 200 mA | G3VM-81UR1 | | G3VM-81UR1(TR05) | |
| | | | 100 V | 100 mA | G3VM-101UR | | G3VM-101UR(TR05) | |

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number. Tape-cut VSONs are packaged without humidity resistance. Use manual soldering to mount them. Refer to common precautions.

* The AC peak and DC value are given for the load voltage and continuous load current.

■Absolute Maximum Ratings (Ta = 25°C)

| | Item | Symbol | G3VM-61UR1 | G3VM-61UR | G3VM-81UR | G3VM-81UR1 | G3VM-101UR | Unit | Measurement conditions | |
|--------|--------------------------------------|--------|-------------|-----------|-----------|------------|------------|-------|-------------------------------|--|
| | LED forward current | lF | | 30 | | | | | | |
| Input | LED forward current reduction rate | ΔIF/°C | | | -0.3 | | | mA/°C | Ta≥25°C | |
| du | LED reverse voltage | VR | | | 5 | | | V | | |
| | Connection temperature | TJ | | | 125 | | | °C | | |
| | Load voltage (AC peak/DC) | Voff | 6 | 60 | | 0 | 100 | V | | |
| = | Continuous load current (AC peak/DC) | lo | 120 | 400 | 120 | 200 | 100 | mA | | |
| Output | ON current reduction rate | Δlo/°C | -1.2 | -4.0 | -1.2 | -2 | -1 | mA/°C | Ta≥25°C | |
| 0 | Pulse ON current | lop | 360 | 1200 | 360 | 600 | 300 | mA | t=100 ms, Duty=1/10 | |
| | Connection temperature | TJ | | | 125 | | | °C | | |
| Di | electric strength between I/O * | VI-O | | | 300 | | | Vrms | AC for 1 min | |
| Αı | mbient operating temperature | Ta | -40 to +85 | | | | | | With no icing or condensation | |
| Ar | Ambient storage temperature | | -40 to +125 | | | | | °C | | |
| S | oldering temperature | - | | | 260 | | | °C | 10 s | |

The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

| | Item | Symbol | | G3VM-61UR1 | G3VM-61UR | G3VM-81UR | G3VM-81UR1 | G3VM-101UR | Unit | Measurement conditions | |
|--------|--|------------------|---------|-----------------|-----------------|-----------|------------|------------|----------------------|--|--|
| | 1 | | Minimum | | | 1.1 | | | | | |
| | LED forward voltage | VF | Typical | | | 1.27 | | | V | IE=10 mA | |
| | LED forward voltage | ٠. | Maximum | 1.4 | | | | | ٠ | II = 10 IIIA | |
| + | Reverse current | l _B | Maximum | | | 10 | | | μА | V _R =5 V | |
| Input | | Ст | | | | | | pF | | | |
| = | Capacitance between terminals | CT | Typical | 30 | | | | рr | V=0, f=1 MHz | | |
| | Trigger LED forward current | IFT | Typical | 1 | - | | 1 | - | mΑ | lo=100 mA | |
| | | | Maximum | | | 3 | | | | | |
| | Release LED forward current | IFC | Minimum | 0.1 | | mA | Ioff=10 μA | | | | |
| | Maximum resistance with | | Typical | 10 | 1.0 | 7 | 6 | 8 | | IF=5 mA, t<1 s, Io=Continuous load current ratings | |
| ± | output ON | Ron | Maximum | 15 | 1.5 | 12 | 8 | 14 | Ω | | |
| Output | Current leakage when the relay is open | ILEAK | Maximum | 1 | ı | 0.02 | 1 | 0.2 | nA | Vorr=Load voltage ratings | |
| | Capacitance between | _ | Typical | 0.7 | 20 | 5 | 6.5 | 6 | | V 0 / 400 MIL 1 4 | |
| | terminals | Coff | Maximum | 1.3 | _ | 7 | 11 | 8 | pF | V=0, f=100 MHz, t<1 s | |
| Ca | pacitance between I/O terminals | C _{I-O} | Typical | | <u>'</u> | 1 | u . | | pF | f=1 MHz, Vs=0 V | |
| | ulation resistance between I/O minals | Ri-o | Typical | | 10 ⁸ | | | МΩ | V⊦o=500 VDC, RoH≤60% | | |
| т | Turn-ON time | | Typical | 0.05 | | | | | I==5 mA, RL=200 Ω, | | |
| Tu | | | Maximum | 0.2 0.5 0.4 0.3 | | | l | | | | |
| _ | | torr | Typical | 0.015 | | - | _ | | ms | V _{DD} =20 V * | |
| Γu | Turn-OFF time | | Maximum | 0.2 | 0.5 | 0.2 | 0.4 | 0.3 | | | |

* Turn-ON and Turn-OFF Times



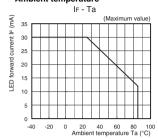
▼SON ■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

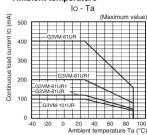
| Item | Symbol | | G3VM-61UR1 | G3VM-61UR | G3VM-81UR | G3VM-81UR1 | G3VM-101UR | Unit |
|--------------------------------------|--------|---------|------------|-----------|-----------|------------|------------|------|
| Load voltage (AC peak/DC) | VDD | Maximum | 48 64 80 | | | | 80 | V |
| | | Minimum | | | 5 | | | |
| Operating LED forward current | lF | Typical | 7.5 | | | | | |
| | | Maximum | 20 | | | | | - mA |
| Continuous load current (AC peak/DC) | lo | Maximum | 120 | 400 | 120 | 200 | 100 | |
| Ambient operating temperature | Ta | Minimum | | | -20 | | | ĵ |
| Ambient operating temperature | 1a | Maximum | | | 65 | | | |

●LED forward current vs. Ambient temperature

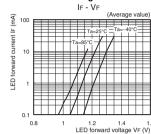


Continuous load current vs. Ambient temperature

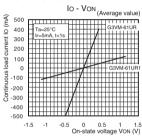
G3VM-61UR / 81UR / 101UR

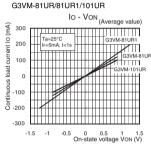


●LED forward current vs. LED forward voltage

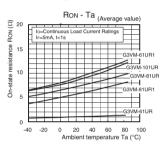


Continuous load current vs. On-state voltage G3VM-61UR1/61UR

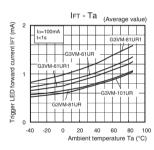




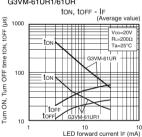
On-state resistance vs. Ambient temperature



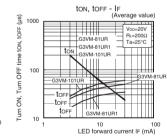
Trigger LED forward current vs. Ambient temperature



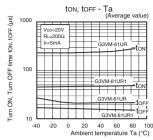
●Turn ON, Turn OFF time vs. LED forward current G3VM-61UR1/61UR



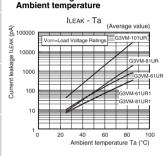
G3VM-81UR/81UR1/101UR



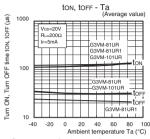
●Turn ON, Turn OFF time vs. Ambient temperature G3VM-61UR1/61UR



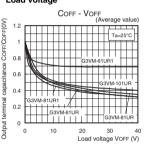
●Current leakage vs.



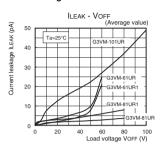
G3VM-81UR/81UR1/101UR



Output terminal capacitance vs. Load voltage



Current leakage vs. Load voltage



G3VM-61UR\(\)/81UR\(\)/101UR

■Appearance / Terminal Arrangement / Internal Connections

Appearance

VSON (Very Small Outline Non-leaded)

VSON 4-pin



* Actual model name marking for each model

| Model | Marking |
|------------|---------|
| G3VM-61UR1 | 6U1 |
| G3VM-61UR | 6U0 |
| G3VM-81UR | 8U0 |
| G3VM-81UR1 | 8U1 |
| G3VM-101UR | AU0 |

●Terminal Arrangement/Internal Connections

(Top View)



Note: 1. The actual product is marked differently from the image shown here.

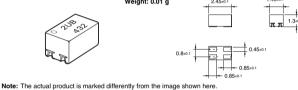
Note: 2. "G3VM" does not appear in the model number on the Relay.

Dimensions (Unit: mm)

Surface-mounting Terminals

Weight: 0.01 a





Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Unless otherwise specified, the dimensional tolerance is ±0.1 mm

■Approved Standards

Applying for UL recognition

■Safety Precautions

• Refer to the Common Precautions for All MOS FET Relays for precautions that apply to all MOS FET Relays.

●MOS FET Relay

IP (Dual Inline Package

| Model | Standard | Contact | Standard No. | Coil ratings | Page |
|-----------------|---|--------------|--------------|----------------------------|------|
| G3VM-21AR/DR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 3000 mA 20 V (AC peak/DC) | 110 |
| G3VM-21BR/ER | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 4000 mA 20 V (AC peak/DC) | 115 |
| G3VM-41AY/DY | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 2000 mA 40 V (AC peak/DC) | 147 |
| G3VM-41AY1/DY1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 2000 mA 40 V (AC peak/DC) | 147 |
| G3VM-41AR/DR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 2500 mA 40 V (AC peak/DC) | 110 |
| G3VM-41BR/ER | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 3500 mA 40 V (AC peak/DC) | 115 |
| G3VM-61A1/D1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 500 mA 60 V (AC peak/DC) | 62 |
| G3VM-61AY/DY | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 500 mA 60 V (AC peak/DC) | 147 |
| G3VM-61AY1/DY1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 500 mA 60 V (AC peak/DC) | 147 |
| G3VM-61AR/DR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 2000 mA 60 V (AC peak/DC) | 110 |
| G3VM-61B1/E1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 500 mA 60 V (AC peak/DC) | 62 |
| G3VM-61BR/ER | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 2500 mA 60 V (AC peak/DC) | 115 |
| G3VM-61BR1/ER1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 3000 mA 60 V (AC peak/DC) | 115 |
| G3VM-61CR1/FR1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 5000mA 60V (AC peak/DC) | 121 |
| G3VM-62C1/F1 | UL Approved Models (Recognized) | 2a (DPST-NO) | E80555 | 500 mA 60 V (AC peak/DC) | 98 |
| G3VM-101AR/DR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 1000 mA 100 V (AC peak/DC) | 110 |
| G3VM-101BR/ER | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 2000 mA 100 V (AC peak/DC) | 115 |
| G3VM-101CR/FR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 3000mA 100V (AC peak/DC) | 121 |
| G3VM-201AY/DY | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 250 mA 200 V (AC peak/DC) | 147 |
| G3VM-201AY1/DY1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 250 mA 200 V (AC peak/DC) | 147 |
| G3VM-201CR/FR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 1500mA 200V (AC peak/DC) | 121 |
| G3VM-351AY/DY | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 100 mA 350 V (AC peak/DC) | 147 |
| G3VM-351AY1/DY1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 100 mA 350 V (AC peak/DC) | 147 |
| G3VM-2L/2FL | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 120 mA 350 V (AC peak/DC) | 159 |
| | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 120 mA 350 V (AC peak/DC) | |
| G3VM-351A/D | EN62368-1 Approved Models (BSI certified) | 1a (SPST-NO) | VC669156 | | 62 |
| G3VM-353A/D | UL Approved Models (Recognized) | 1b (SPST-NC) | E80555 | 150 mA 350 V (AC peak/DC) | 62 |
| G3VM-351B/E | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 120 mA 350 V (AC peak/DC) | 62 |
| G3VM-353B/E | UL Approved Models (Recognized) | 1b (SPST-NC) | E80555 | 150 mA 350 V (AC peak/DC) | 62 |
| | UL Approved Models (Recognized) | 2a (DPST-NO) | E80555 | 120 mA 350 V (AC peak/DC) | |
| G3VM-352C/F | EN62368-1 Approved Models (BSI certified) | 2a (DPST-NO) | VC669156 | | 98 |
| G3VM-WL/WFL | UL Approved Models (Recognized) | 2a (DPST-NO) | E80555 | 120 mA 350 V (AC peak/DC) | 159 |
| G3VM-354C/F | UL Approved Models (Recognized) | 2b (DPST-NC) | E80555 | 150 mA 350 V (AC peak/DC) | 98 |
| G3VM-401A/D | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 120 mA 400 V (AC peak/DC) | 62 |
| G3VM-401AY/DY | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 120 mA 400 V (AC peak/DC) | 147 |
| G3VM-401AY1/DY1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 120 mA 400 V (AC peak/DC) | 147 |
| G3VM-401B/E | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 120 mA 400 V (AC peak/DC) | 62 |
| G3VM-401BY/EY | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 120 mA 400 V (AC peak/DC) | 155 |
| G3VM-401CR/FR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 400mA 400V (AC peak/DC) | 121 |
| G3VM-402C/F | UL Approved Models (Recognized) | 2a (DPST-NO) | E80555 | 120 mA 400 V (AC peak/DC) | 98 |
| 33VM-601AY/DY | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 90 mA 600 V (AC peak/DC) | 147 |
| 33VM-601AY1/DY1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 90 mA 600 V (AC peak/DC) | 147 |
| G3VM-601BY/EY | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 100 mA 600 V (AC peak/DC) | 155 |
| G3VM-601CR/FR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 600mA 600V (AC peak/DC) | 121 |

Consult your OMRON sales representative for specific models with standard approvals.

SOP (Small Outline Package)

| Model | Standard | Contact | Standard No. | Coil ratings | Page |
|-------------|---|----------------------------|--------------|----------------------------|------|
| G3VM-21GR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 160 mA 20 V (AC peak/DC) | 165 |
| G3VM-21GR1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 300 mA 20 V (AC peak/DC) | 165 |
| G3VM-21HR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 2500 mA 20 V (AC peak/DC) | 131 |
| G3VM-31HR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 4000mA 30V (AC peak/DC) | 131 |
| G3VM-41GR6 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 120 mA 40 V (AC peak/DC) | 165 |
| G3VM-41GR4 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 250 mA 40 V (AC peak/DC) | 165 |
| G3VM-41GR5 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 300 mA 40 V (AC peak/DC) | 165 |
| G3VM-41GR8 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 1000 mA 40 V (AC peak/DC) | 127 |
| G3VM-41HR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 2500 mA 40 V (AC peak/DC) | 131 |
| G3VM-61VY1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 100 mA 60 V (AC peak/DC) | 68 |
| G3VM-61G1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 400 mA 60 V (AC peak/DC) | 68 |
| G3VM-61G2 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 400 mA 60 V (AC peak/DC) | 68 |
| G3VM-61G3 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 400 mA 60 V (AC peak/DC) | 68 |
| G3VM-61VY2 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 500mA 60V (AC peak/DC) | 68 |
| G3VM-61VY3 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 700mA 60V (AC peak/DC) | 68 |
| G3VM-61GR1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 1000 mA 60 V (AC peak/DC) | 127 |
| G3VM-61GR2 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 1700mA 60V (AC peak/DC) | 127 |
| G3VM-61VR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 1400mA 60V (AC peak/DC) | 127 |
| G3VM-63G | UL Approved Models (Recognized) | 1b (SPST-NC) | E80555 | 500mA 60V (AC peak/DC) | 68 |
| G3VM-61H1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 400 mA 60 V (AC peak/DC) | 88 |
| G3VM-61HR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 2300 mA 60 V (AC peak/DC) | 131 |
| G3VM-61HR1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 3300mA 60V (AC peak/DC) | 131 |
| G3VM-62J1 | UL Approved Models (Recognized) | 2a (DPST-NO) | E80555 | 400 mA 60 V (AC peak/DC) | 104 |
| G3VM-81GR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 40 mA 80 V (AC peak/DC) | 165 |
| G3VM-81GR1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 200 mA 80 V (AC peak/DC) | 165 |
| G3VM-81G1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 350 mA 80 V (AC peak/DC) | 73 |
| G3VM-81HR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 1250 mA 80 V (AC peak/DC) | 137 |
| G3VM-101HR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 1400 mA 100 V (AC peak/DC) | 137 |
| G3VM-101HR1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 2000mA 100V (AC peak/DC) | 137 |
| G3VM-201G | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 50 mA 200 V (AC peak/DC) | 77 |
| G3VM-201G1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 200 mA 200 V (AC peak/DC) | 77 |
| G3VM-201G2 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 200 mA 200 V (AC peak/DC) | 77 |
| G3VM-S5 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 200 mA 200 V (AC peak/DC) | 77 |
| G3VM-201H1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 200 mA 200 V (AC peak/DC) | 88 |
| G3VM-202J1 | UL Approved Models (Recognized) | 2a (DPST-NO) | E80555 | 200 mA 200 V (AC peak/DC) | 104 |
| G3VM-351G1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 100 mA 350 V (AC peak/DC) | 82 |
| G3VM-351G | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 110 mA 350 V (AC peak/DC) | 82 |
| G3VM-351VY | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 110mA 350V (AC peak/DC) | 82 |
| G3VM-353G | UL Approved Models (Recognized) | 1b (SPST-NC) | E80555 | 120 mA 350 V (AC peak/DC) | 82 |
| G3VM-351H | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 110 mA 350 V (AC peak/DC) | 88 |
| G3VM-353H | UL Approved Models (Recognized) | 1b (SPST-NC) | E80555 | 120 mA 350 V (AC peak/DC) | 88 |
| G3VM-355JR | UL Approved Models (Recognized) | 1a1b (SPST- NO/SPST-NC) | E80555 | 120 mA 350 V (AC peak/DC) | 104 |
| G3VM-352J | UL Approved Models (Recognized) | 2a (DPST-NO) | E80555 | 110 mA 350 V (AC peak/DC) | 104 |
| G3VM-354J | UL Approved Models (Recognized) | 2b (DPST-NC) | E80555 | 120 mA 350 V (AC peak/DC) | 104 |
| G3VM-401G1 | UL certification pending. | 1a (SPST-NO) | E80555 | 100 mA 400 V (AC peak/DC) | 82 |
| | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 120 mA 400 V (AC peak/DC) | |
| G3VM-401G | EN62368-1 Approved Models (BSI certified) | 1a (SPST-NO) | VC669262 | | 82 |
| | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 120 mA 400 V (AC peak/DC) | |
| G3VM-401H | EN62368-1 Approved Models (BSI certified) | 1a (SPST-NO) | VC669262 | | 88 |
| | UL Approved Models (Recognized) | 2a (DPST-NO) | E80555 | 120 mA 400 V (AC peak/DC) | |
| G3VM-402J | EN62368-1 Approved Models (BSI certified) | 2a (DPST-NO) | VC669262 | | 104 |
| G3VM-601G1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 70 mA 600 V (AC peak/DC) | 94 |
| G3VM-601G | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 90 mA 600 V (AC peak/DC) | 94 |

SSOP (Shrink Small Outline Package)

| Model | Standard | Contact | Standard No. | Coil ratings | Page |
|-------------|---------------------------------|--------------|--------------|--------------------------|------|
| G3VM-21LR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 160 mA 20 V (AC peak/DC) | 170 |
| G3VM-21LR10 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 200 mA 20 V (AC peak/DC) | 170 |
| G3VM-21LR1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 450 mA 20 V (AC peak/DC) | 170 |
| G3VM-21LR11 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 900 mA 20 V (AC peak/DC) | 170 |
| G3VM-41LR10 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 120 mA 40 V (AC peak/DC) | 175 |
| G3VM-41LR6 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 120 mA 40 V (AC peak/DC) | 175 |
| G3VM-41LR11 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 140 mA 40 V (AC peak/DC) | 175 |
| G3VM-41LR4 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 250 mA 40 V (AC peak/DC) | 175 |
| G3VM-41LR5 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 300 mA 40 V (AC peak/DC) | 175 |
| G3VM-61LR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 400 mA 60 V (AC peak/DC) | 204 |
| G3VM-81LR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 120 mA 80 V (AC peak/DC) | 204 |
| G3VM-101LR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 80 mA 100 V (AC peak/DC) | 204 |

Consult your OMRON sales representative for specific models with standard approvals.

USOP (Ultra Small Outline Package)

| Model | Standard | Contact | Standard No. | Coil ratings | Page |
|-------------|---------------------------------|--------------|--------------|---------------------------|------|
| G3VM-21PR10 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 200 mA 20 V (AC peak/DC) | 180 |
| G3VM-21PR1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 450 mA 20 V (AC peak/DC) | 180 |
| G3VM-21PR11 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 900 mA 20 V (AC peak/DC) | 180 |
| G3VM-41PR12 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 100 mA 40 V (AC peak/DC) | 185 |
| G3VM-41PR10 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 120 mA 40 V (AC peak/DC) | 185 |
| G3VM-41PR6 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 120 mA 40 V (AC peak/DC) | 185 |
| G3VM-41PR11 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 140 mA 40 V (AC peak/DC) | 185 |
| G3VM-41PR5 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 300 mA 40 V (AC peak/DC) | 185 |
| G3VM-51PR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 300 mA 50 V (AC peak/DC) | 185 |
| G3VM-61PR1 | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 120 mA 60 V (AC peak/DC) | 208 |
| G3VM-61PR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 400 mA 60 V (AC peak/DC) | 208 |
| G3VM-71PR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 400 mA 75V (AC peak/DC) | 208 |
| G3VM-81PR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 120 mA 80 V (AC peak/DC) | 208 |
| G3VM-101PR | UL Approved Models (Recognized) | 1a (SPST-NO) | E80555 | 100 mA 100 V (AC peak/DC) | 208 |

VSON (Very Small Outline Non-leaded)

| Model | Standard | Contact | Standard No. | Coil ratings | Page |
|-------------|---------------------------|--------------|--------------|---------------------------|------|
| G3VM-21UR10 | UL certification pending. | 1a (SPST-NO) | E80555 | 200 mA 20 V (AC peak/DC) | 190 |
| G3VM-21UR1 | UL certification pending. | 1a (SPST-NO) | E80555 | 450 mA 20 V (AC peak/DC) | 190 |
| G3VM-21UR11 | UL certification pending. | 1a (SPST-NO) | E80555 | 1000 mA 20 V (AC peak/DC) | 190 |
| G3VM-41UR12 | UL certification pending. | 1a (SPST-NO) | E80555 | 100 mA 40 V (AC peak/DC) | 195 |
| G3VM-41UR10 | UL certification pending. | 1a (SPST-NO) | E80555 | 120 mA 40 V (AC peak/DC) | 195 |
| G3VM-41UR11 | UL certification pending. | 1a (SPST-NO) | E80555 | 140 mA 40 V (AC peak/DC) | 195 |
| G3VM-51UR | UL certification pending. | 1a (SPST-NO) | E80555 | 300 mA 50 V (AC peak/DC) | 195 |
| G3VM-61UR1 | UL certification pending. | 1a (SPST-NO) | E80555 | 120 mA 60 V (AC peak/DC) | 213 |
| G3VM-61UR | UL certification pending. | 1a (SPST-NO) | E80555 | 400 mA 60 V (AC peak/DC) | 213 |
| G3VM-81UR | UL certification pending. | 1a (SPST-NO) | E80555 | 120 mA 80 V (AC peak/DC) | 213 |
| G3VM-81UR1 | UL certification pending. | 1a (SPST-NO) | E80555 | 200 mA 80 V (AC peak/DC) | 213 |
| G3VM-101UR | UL certification pending. | 1a (SPST-NO) | E80555 | 100 mA 100 V (AC peak/DC) | 213 |

A Selection Guide is available in addition to this MOS FET Relay General Catalog.

- The Selection Guide allows you to easily search for products using tables of basic specifications.
- You can use simple searches in the Selection Guide and then check for details in this General Catalog.
- Basic information is summarized in the booklet so that you can easily take the Selection Guide with you wherever you might need it.

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