



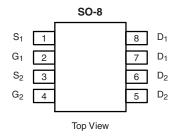
Dual N-Channel 30-V (D-S) MOSFET

PRODUCT SUMMARY			
V _{DS} (V)	$R_{DS(on)}(\Omega)$	I _D (A)	
30	0.025 at V _{GS} = 10 V	± 6.9	
	0.035 at V _{GS} = 4.5 V	± 5.8	

FEATURES

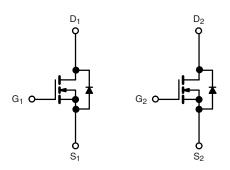
- Halogen-free According to IEC 61249-2-21 Definition
- TrenchFET® Power MOSFETs
- 100 % $\rm R_{\rm g}$ Tested Compliant to RoHS Directive 2002/95/EC





Ordering Information: Si4920DY-T1-E3 (Lead (Pb)-free)

Si4920DY-T1-GE3 (Lead (Pb)-free and Halogen-free)



N-Channel MOSFET

N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS	S T _A = 25 °C, unle	ss otherwise n	oted	
Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	30	.,
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current (T _J = 150 °C) ^a	T _A = 25 °C	I _D	± 6.9	
	T _A = 70 °C		± 5.5	•
Pulsed Drain Current (10 μs Pulse Width)		I _{DM}	± 40	A
Continuous Source Current (Diode Conduction) ^a		I _S	1.7	
	T _A = 25 °C	P _D	2	10/
Maximum Power Dissipation ^a	T _A = 70 °C	r _D	1.3	─ W
Operating Junction and Storage Temperature Range		T _J , T _{stq}	- 55 to 150	°C

THERMAL RESISTANCE RATINGS				
Parameter	Symbol	Limit	Unit	
Maximum Junction-to-Ambient ^a	R _{thJA}	62.5	°C/W	

Notes:

a. Surface Mounted on FR4 board, $t \le 10 \text{ s.}$

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SPECIFICATIONS T _J = 25 °C, unless otherwise noted								
Parameter	Symbol	Test Conditions	Min.	Тур.	Max.	Unit		
Static	1			1	ı			
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_{D} = 250 \mu A$	1			V		
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 V$, $V_{GS} = \pm 20 V$			± 100	nA		
Zero Gate Voltage Drain Current	1	V _{DS} = 30 V, V _{GS} = 0 V			1			
	I _{DSS}	$V_{DS} = 30 \text{ V}, V_{GS} = 0 \text{ V}, T_{J} = 55 ^{\circ}\text{C}$			25	μΑ		
On-State Drain Current ^a	I _{D(on)}	$V_{DS} \ge 5 \text{ V}, V_{GS} = 10 \text{ V}$	20			Α		
Drain-Source On-State Resistance ^a	D	V _{GS} = 10 V, I _D = 6.9 A		0.020				
	R _{DS(on)}	V _{GS} = 4.5 V, I _D = 5.8 A		0.026	0.035	Ω		
Forward Transconductancea	9 _{fs}	$V_{DS} = 15 \text{ V}, I_D = 6.9 \text{ A}$		25		S		
Diode Forward Voltage ^a	V_{SD}	I _S = 1.7 A, V _{GS} = 0 V			1.2	V		
Dynamic ^b								
Gate Charge	Q_g	$V_{DS} = 15 \text{ V}, V_{GS} = 5 \text{ V}, I_{D} = 6.9 \text{ A}$		15	23			
Total Gate Charge	Q _{gt}			30	50	nC		
Gate-Source Charge	Q_{gs}	$V_{DS} = 15 \text{ V}, V_{GS} = 10 \text{ V}, I_D = 6.9 \text{ A}$		7.5				
Gate-Drain Charge	Q_{gd}			3.5				
Gate Resistance	R_g	f = 1 MHz		2	3	Ω		
Turn-On Delay Time	t _{d(on)}			12	20			
Rise Time	t _r	V_{DD} = 15 V, R_L = 15 Ω		10	20	ns		
Turn-Off Delay Time	t _{d(off)}	$I_D\cong$ 1 A, V_{GEN} = 10 V, R_g = 6 Ω		60	90			
Fall Time	t _f			15	30			
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 1.7 A, dI/dt = 100 A/μs		50	90			

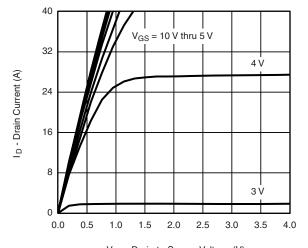
- a. Pulse test; pulse width $\leq 300~\mu s,$ duty cycle $\leq 2~\%.$
- b. Guaranteed by design, not subject to production testing.

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.



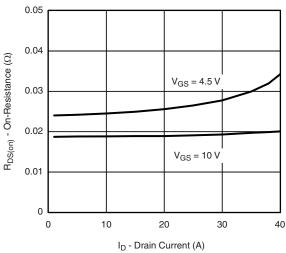


TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted

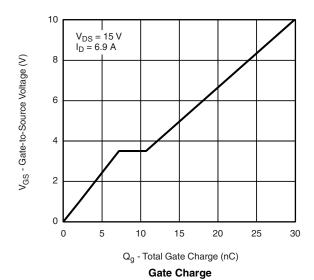


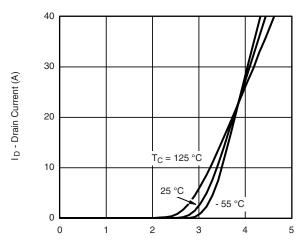
 V_{DS} - Drain-to-Source Voltage (V)

Output Characteristics



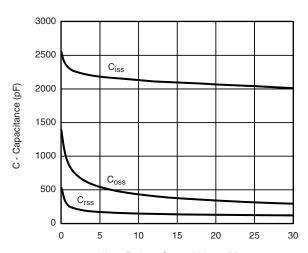
On-Resistance vs. Drain Current





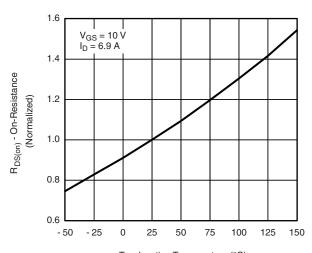
 $V_{\mbox{\footnotesize GS}}$ - Gate-to-Source Voltage (V)

Transfer Characteristics



 V_{DS} - Drain-to-Source Voltage (V)

Capacitance

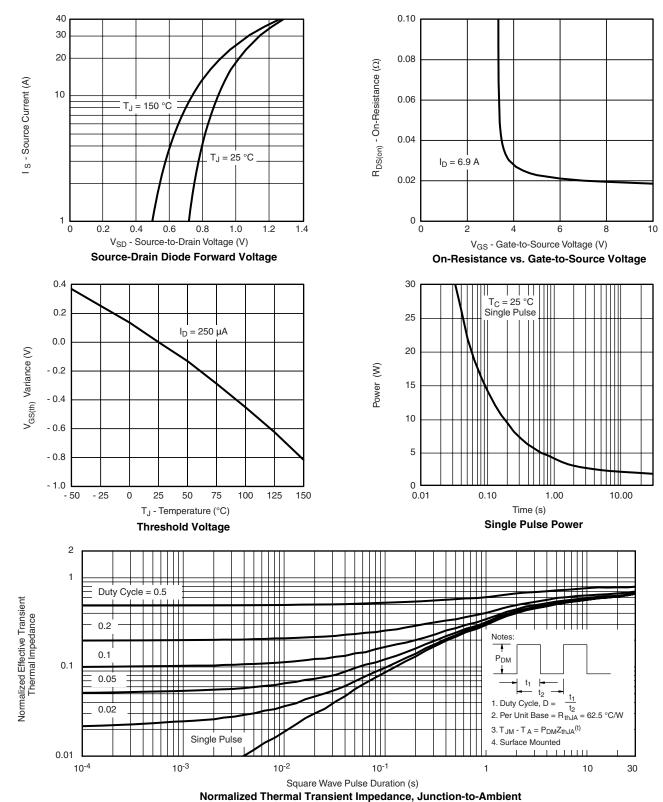


 T_J - Junction T emperature (°C)

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TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



Vishay Siliconix maintains worldwide manufacturing capability. Products may be manufactured at one of several qualified locations. Reliability data for Silicon Technology and Package Reliability represent a composite of all qualified locations. For related documents such as package/tape drawings, part marking, and reliability data, see www.vishay.com/ppg?70667.



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