

# Schottky Rectifier, Ultra-Low VF, 10 A, 45 V

## FSV1045V

### Description

The FSV1045V Schottky rectifier offers break-through size and performance. The device is optimized for mobile charger applications. It sinks only 18 mA reverse current at high temperature and provides forward voltage drop of 0.18 V at 1 A operating current in a charger design.

All this capability is packed into a small, flat-lead, TO-277 package, optimized for space-constrained applications. The FSV1045V supports a typical Z height of 1.1 mm. It is RoHS compliant and halogen free. It is also qualified for a wave soldering process.

### Features

- Ultra-Low Forward Voltage Drop:
  - ◆ 0.41 V Typical at 10 A,  $T_A = 25^\circ\text{C}$
  - ◆ 0.44 V Maximum at 10 A,  $T_A = 25^\circ\text{C}$
- Low Thermal Resistance
- Very Low Profile: Typical Height of 1.1 mm
- Meets MSL 1 per JESD22-A111 Full-Body Solder Immersion
- Non-DAP Option Only
- This Device is Pb-Free, Halogen Free and is RoHS Compliant

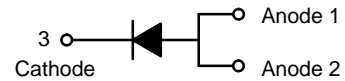
### Applications

- Mobile Charger
- Solar Panel
- Reverse Polarity Protection

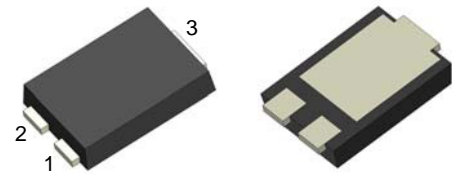


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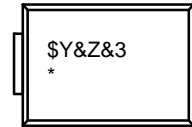


Schottky Rectifier



TO-277-3LD  
CASE 340BQ

### MARKING DIAGRAM



\$Y	= ON Semiconductor Logo
&Z	= Assembly Plant Code
&3	= Data Code (Year & Week)
*	= Specific Device Code FSV1045

### ORDERING INFORMATION

See detailed ordering and shipping information on page 3 of this data sheet.

# FSV1045V

## ABSOLUTE MAXIMUM RATINGS (Note 1)

Symbol	Parameter		Value	Unit
$V_{RRM}$	Peak Repetitive Reverse Voltage		45	V
$V_{RWM}$	Working Peak Reverse Voltage		45	V
$V_{RMS}$	RMS Reverse Voltage		32	V
$V_R$	DC Blocking Voltage		45	V
$I_O$	Average Rectified Output Current (Note 2)	$T_L = 105^\circ\text{C}$	10	A
$I_{FSM}$	Non-Repetitive Peak Forward Surge Current (Note 3)		300	A
$C_J$	Typical Junction Capacitance	$V_R = 4\text{ V}, 1\text{ MHz}$	820	pF
$T_J$	Operating Junction Temperature Range		-55 to +150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range		-55 to +150	$^\circ\text{C}$

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. All test conducted at  $T_A = T_J = 25^\circ\text{C}$  unless otherwise noted
2. Mounted on 30 mm x 30 mm FR4 PCB
3. Pulse condition: 8.3 ms half-sine wave. Test method is compliant with MIL standard (MIL-STD-750E)

## THERMAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted) (Note 4)

Symbol	Parameter	Minimum Land Pattern	Maximum Land Pattern	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance	100	40	$^\circ\text{C/W}$
$\Psi_{JL}$	Junction-to-Lead Thermal Characteristics, Thermocouple Soldered to Anode	15	12	$^\circ\text{C/W}$
	Junction-to-Lead Thermal Characteristics, Thermocouple Soldered to Cathode	6	5	

4. The thermal resistances ( $R_{\theta JA}$  &  $\Psi_{JL}$ ) are characterized with device mounted on the following FR4 printed circuit boards, as shown in Figure 1 and Figure 2. PCB size: 76.2 x 114.3 mm. Minimum land pattern size: 4.9 x 4.8 mm (big pattern, x1), 1.4 x 1.52 mm (small pattern, x2). Maximum land pattern size: 30 x 30 mm (pattern, x2). Force line trace size = 55 mils, sense line trace size = 4 mils.



Figure 1. Minimum Land Pattern of 2 oz Copper

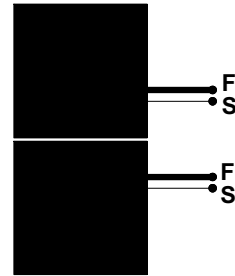


Figure 2. Maximum Land Pattern of 2 oz Copper

# FSV1045V

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_{BR}$	Breakdown Voltage	$I_T = 500 \mu\text{A}$	45			V
$V_F$	Forward Voltage Drop	$I_F = 1 \text{ A}$	$T_A = 25^\circ\text{C}$	0.28		V
		$I_F = 10 \text{ A}$		0.41	0.44	
		$I_F = 1 \text{ A}$	$T_A = 125^\circ\text{C}$	0.18		
		$I_F = 10 \text{ A}$		0.36	0.39	
$I_R$	Maximum Leakage	$V = V_{RWM}$	$T_A = 25^\circ\text{C}$	0.065	0.220	mA
			$T_A = 125^\circ\text{C}$	19	32	

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

## ORDERING INFORMATION

Part Number	Top Mark	Package	Shipping†
FSV1045V	FSV1045	TO-277-3LD (Pb-Free/Halogen Free)	5000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

TYPICAL PERFORMANCE CHARACTERISTICS

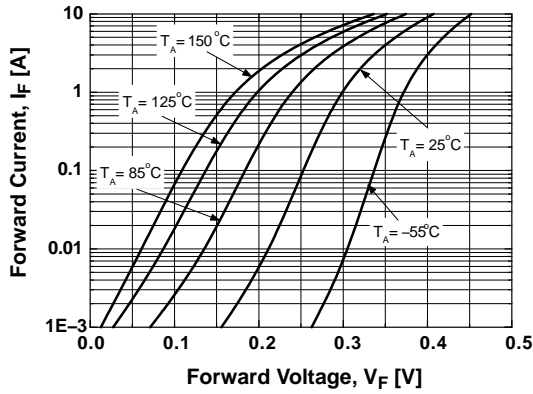


Figure 3. Forward Current Characteristics

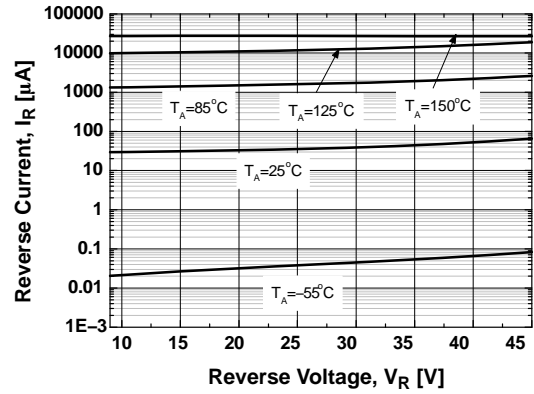


Figure 4. Typical Reverse Characteristics

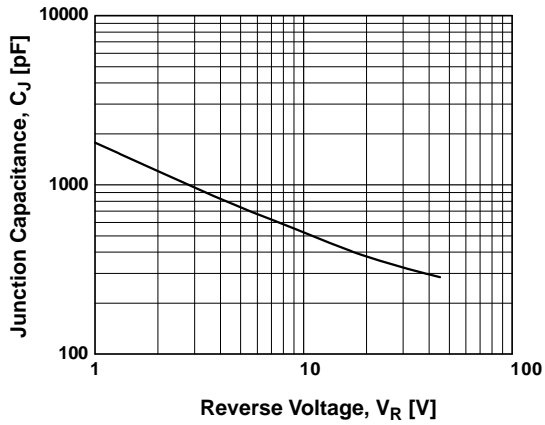


Figure 5. Typical Junction Capacitance

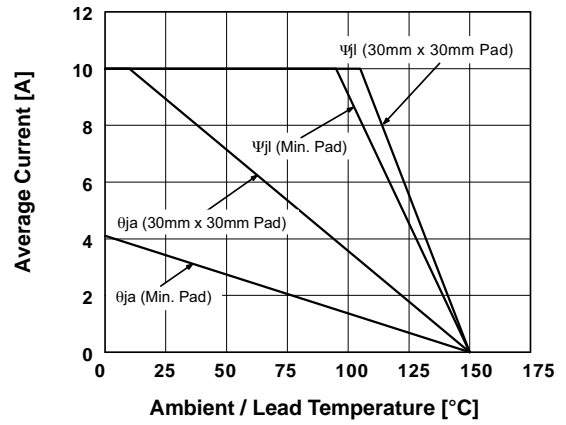


Figure 6. Forward Current Derating

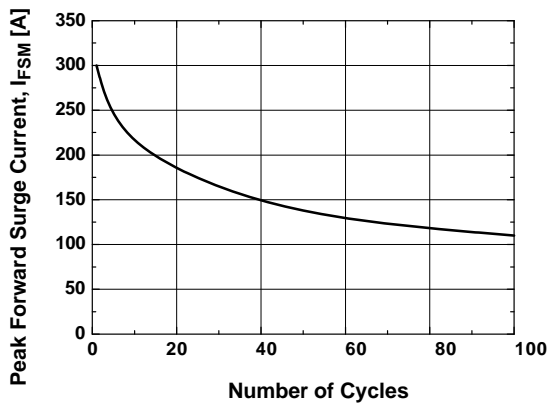


Figure 7. Surge Current Derating Curve

# MECHANICAL CASE OUTLINE

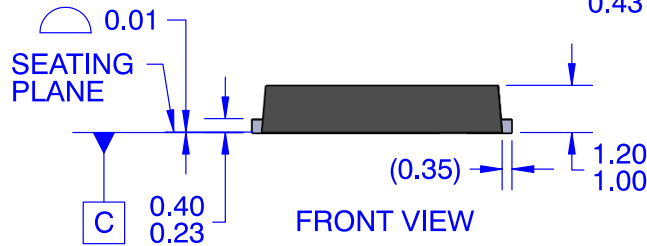
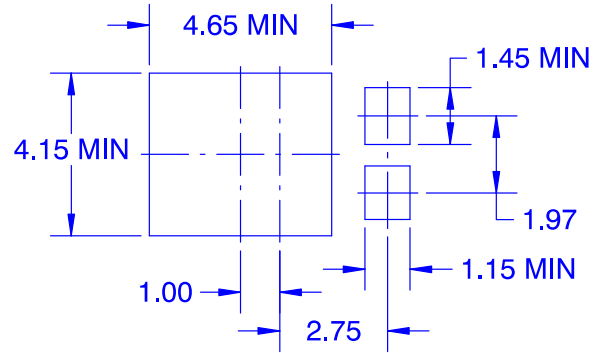
## PACKAGE DIMENSIONS

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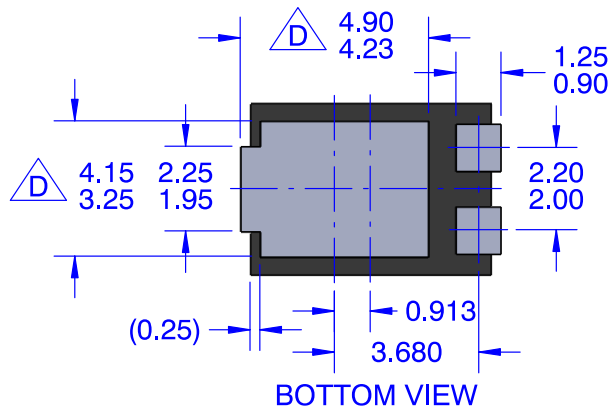


TO-277-3LD  
CASE 340BQ  
ISSUE O

DATE 30 SEP 2016



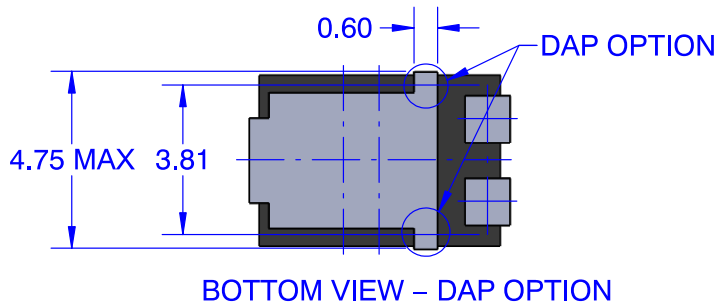
LAND PATTERN RECOMMENDATION



NOTES: UNLESS OTHERWISE SPECIFIED

- A. PACKAGE REFERENCE: JEDEC TO-277
- B. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR EXTRUSIONS.
- C. ALL DIMENSIONS ARE IN MILLIMETERS.

**D** DOES NOT COMPLY TO JEDEC STANDARD VALUE.



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