Schottky Rectifier

10 A, 60 V Ultra−Low VF

FSV1060V

Description

The FSV1060V schottky rectifier offers break−through size and performance. The device is optimized for mobile charger applications. It sinks only 13 mA reverse current at high temperature and provides forward voltage drop of 0.2 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 FSV1060V 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

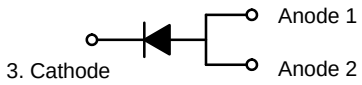
- Ultra−Low Forward Voltage Drop:
  - 0.47 V Typical at 10 A, T_A = 25°C
  - 0.52 V Maximum at 10 A, T_A = 25°C
- Low Thermal Resistance
- Very Low Profile: Typical Height of 1.1 mm
- Meets MSL 1 per JESD22−A111 Full−Body Solder Immersion
- Non−DAP Option Only
- These Devices are Pb−Free, Halogen Free and are RoHS Compliant

Applications

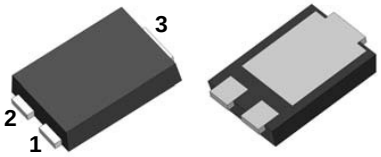
- Mobile Charger
- Solar Panel
- Reverse Polarity Protection

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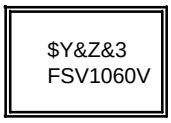


Schottky Rectifier



TO−277−3LD
CASE 340BQ

MARKING DIAGRAM



$Y	= ON Semiconductor Logo
&Z	= Assembly Plant Code
&3	= Date Code (Year & Week)
FSV1060V	= Specific Device Code

ORDERING INFORMATION

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

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Specifications

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted) (Note 1)

Symbol	Parameter	Value	Unit
V_{RRM}	Peak Repetitive Reverse Voltage	60	V
V_{RWM}	Working Peak Reverse Voltage	60	V
V_{RMS}	RMS Reverse Voltage	42	V
V_R	DC Blocking Voltage	60	V
I_O	Average Rectified Output Current at T_L = 90°C (Note 2)	10	A
I_{FSM}	Non−Repetitive Peak Forward Surge Current (Note 3)	280	A
C_J	Typical Junction Capacitance, V_R = 4 V, 1 MHz	550	pF
T_J	Operating Junction Temperature Range	−55 to +150	°C
T_{STG}	Storage Temperature Range	−55 to +150	°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°C unless otherwise noted.
2. Mounted on 30 mm x 30 mm FR4 PCB.
3. Pulse condition: 8.3 ms single half−sine wave. Test method is compliant with MIL standard (MIL−STD−750E).

THERMAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (Note 4)

Symbol	Characteristic	Minimum Land Pattern	Maximum Land Pattern	Unit
$R_{\theta JA}$	Junction−to−Ambient Thermal Resistance	105	38	°C/W
Ψ_{JL}	Junction−to−Lead Thermal Characteristics, Thermocouple Soldered to Anode	18	13	°C/W
	Junction−to−Lead Thermal Characteristics, Thermocouple Soldered to Cathode	8	5	

4. The thermal resistances ($R_{\theta JA}$ & Ψ_{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

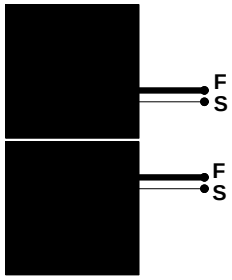


Figure 2. Maximum Land Pattern of 2 oz Copper

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
BV_R	Breakdown Voltage	I_T = 500 μA	60	−	−	V
V_F	Forward Voltage Drop	I_F = 1 A	−	0.30	−	V
		I_F = 10 A	−	0.47	0.52	
		I_F = 1 A, T_A = 125°C	−	0.20	−	
		I_F = 10 A, T_A = 125°C	−	0.46	−	
I_R	Maximum Leakage	$V = V_{RWM}$	−	0.056	0.220	mA
		$V = V_{RWM}$, T_A = 125°C	−	13	−	

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†
FSV1060V	FSV1060V	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

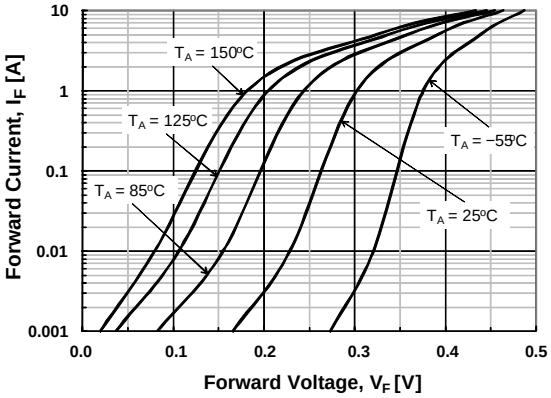


Figure 3. Forward Current Characteristics

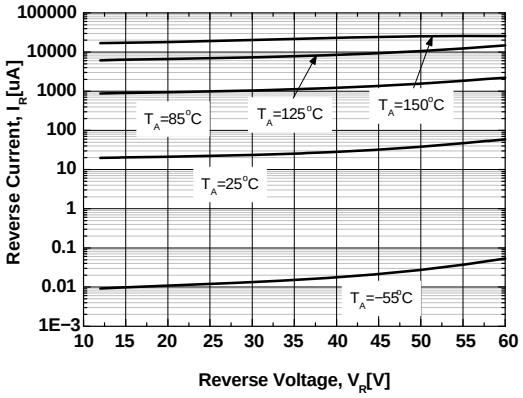


Figure 4. Typical Reverse Characteristics

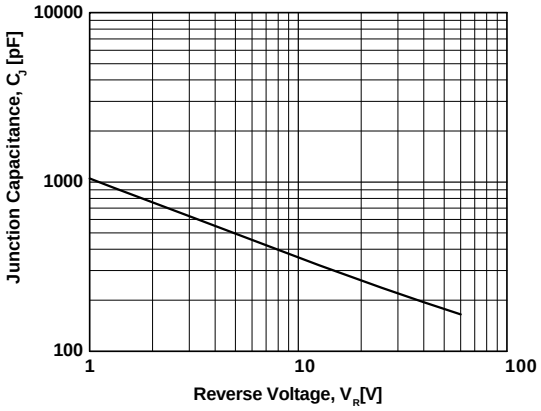


Figure 5. Typical Junction Capacitance

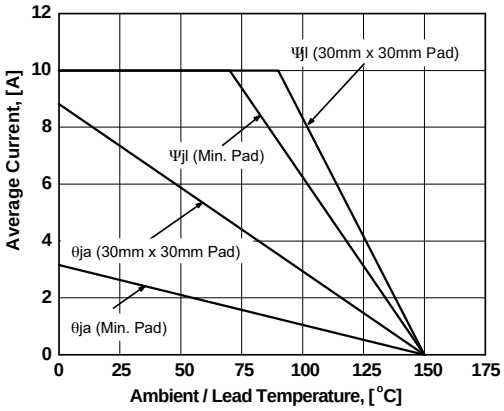


Figure 6. Forward Current Derating Curve

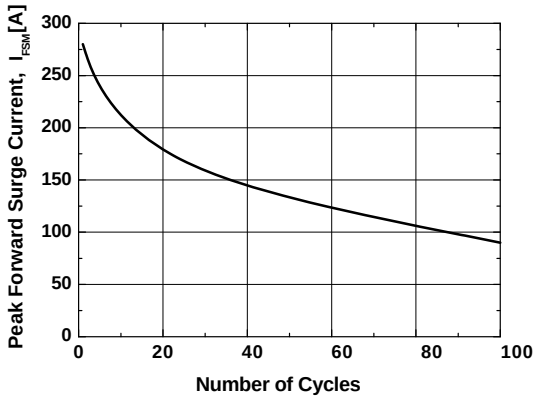
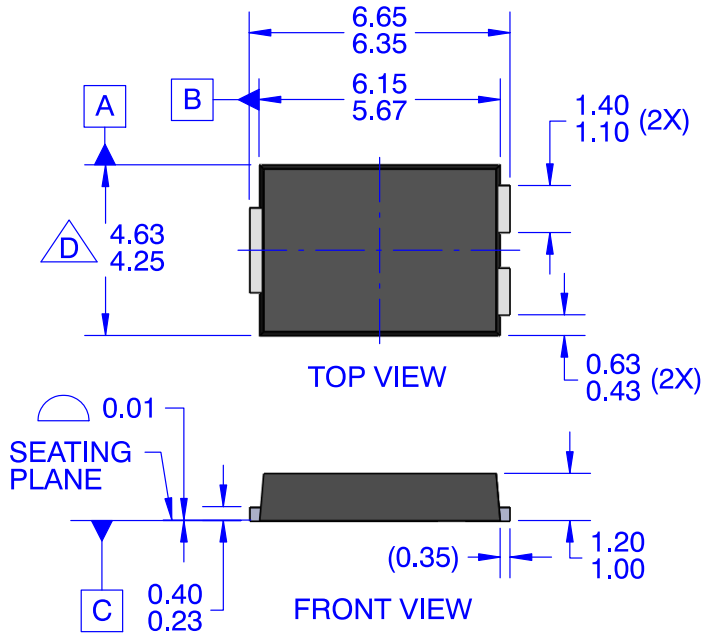
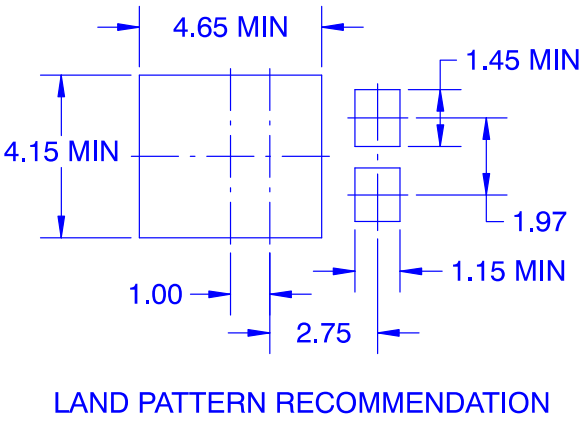


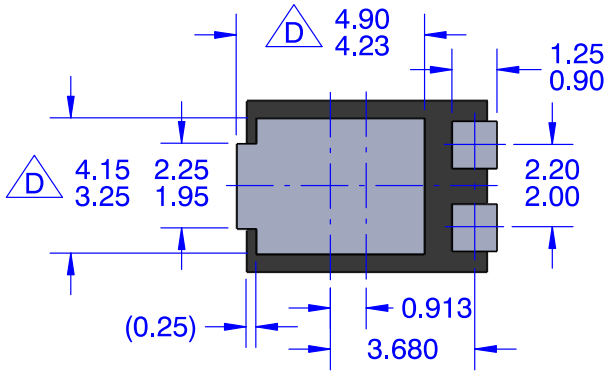
Figure 7. Surge Current Derating Curve

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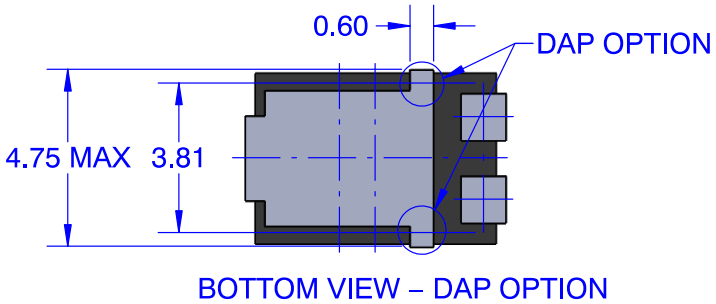




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