May 2015

FSV1060V
10 A, 60 V Ultra-Low VF Schottky Rectifier

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
- RoHS Compliant
- Halogen Free
- Meets MSL 1 per JESD22-A111 Full-Body Solder Immersion

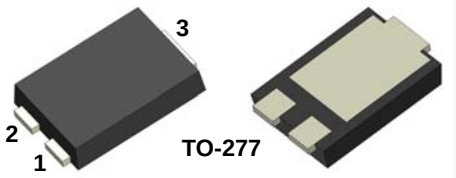
Applications

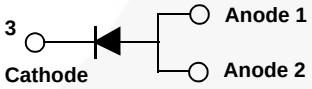
- Mobile Charger
- Solar Panel
- Reverse Polarity Protection

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.





Ordering Information

Part Number	Top Mark	Package	Packing Method
FSV1060V	FSV1060V	TO-277 3L	Tape and Reel

Absolute Maximum Ratings[1]

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_A = 25°C unless otherwise noted.

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[2]	T_L = 90°C	10	A
I_{FSM}	Non-Repetitive Peak Forward Surge Current[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

Notes:

1. All tests 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[4]

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	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	

Note:

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.

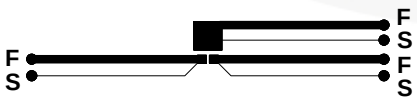


Figure 1. Minimum Land Pattern of 2 oz Copper

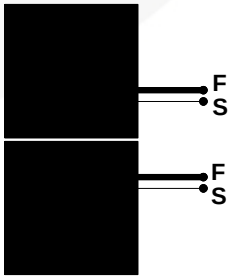


Figure 2. Maximum Land Pattern of 2 oz Copper

Electrical Characteristics

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Conditions		Min.	Typ.	Max.	Unit
V_{BR}	Breakdown Voltage	I_T = 500 μA		60			V
V_F	Forward Voltage Drop	I_F = 1 A	T_A = 25°C		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			0.46		
I_R	Maximum Leakage	$V = V_{RWM}$	T_A = 25°C		0.056	0.220	mA
			T_A = 125°C		13		

Typical Performance Characteristics

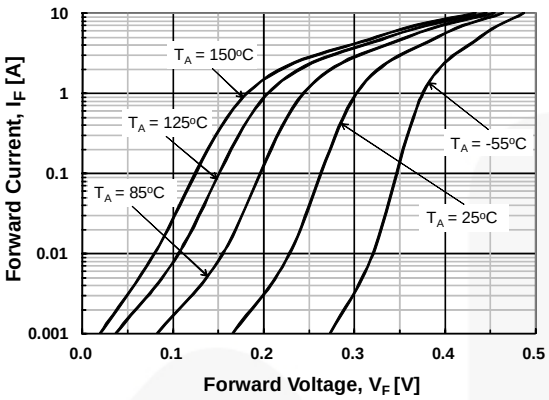


Figure 3. Forward Current Characteristics

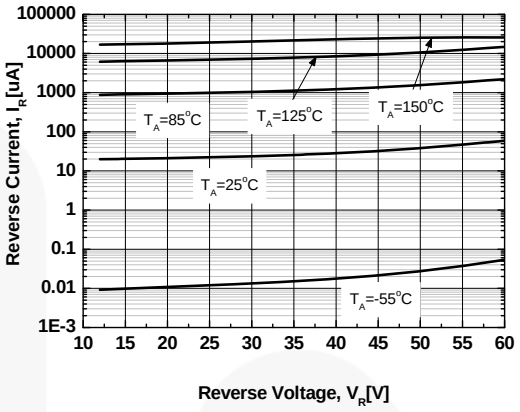


Figure 4. Typical Reverse Characteristics

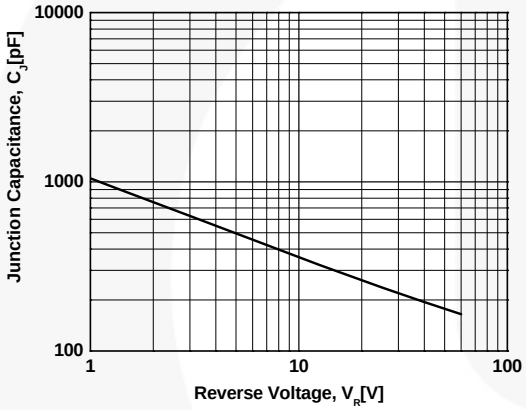


Figure 5. Typical Junction Capacitance

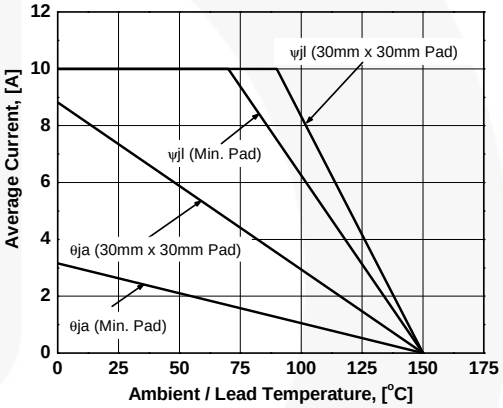


Figure 6. Forward Current Derating Curve

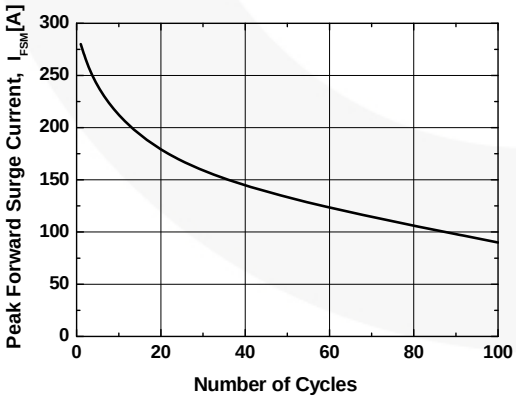
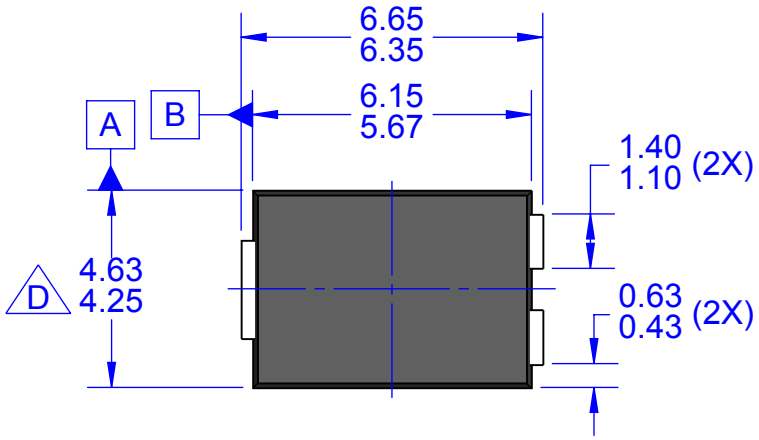
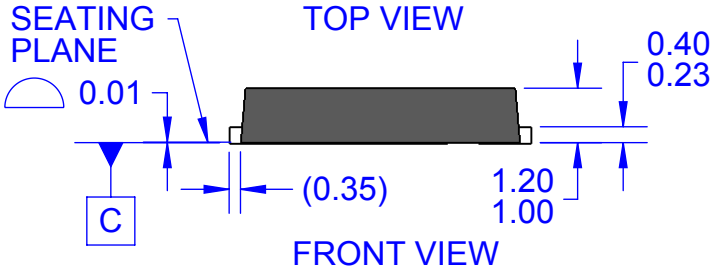


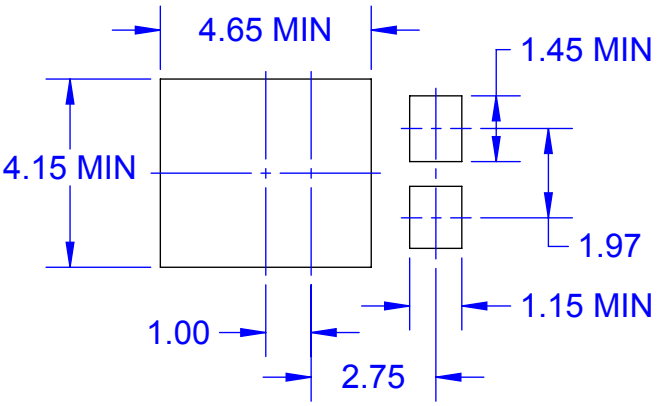
Figure 7. Surge Current Derating Curve



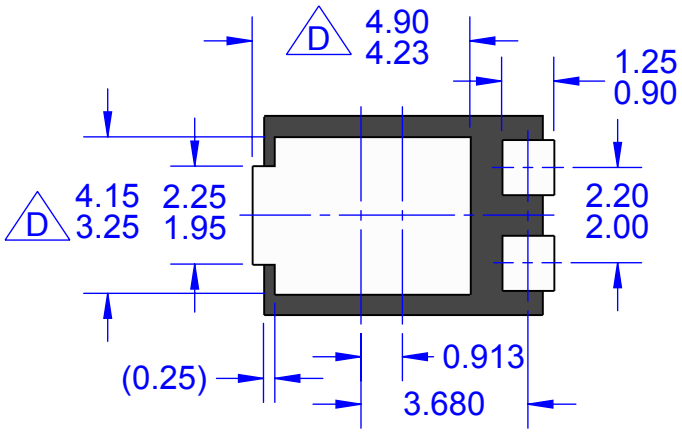
TOP VIEW



FRONT VIEW



LAND PATTERN RECOMMENDATION



BOTTOM VIEW

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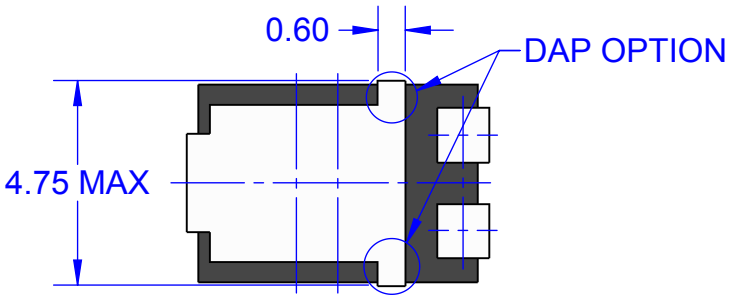
B. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR EXTRUSIONS.
C. ALL DIMENSIONS ARE IN MILLIMETERS.
D DOES NOT COMPLY TO JEDEC STANDARD VALUE.
E. DRAWING FILENAME: MKT-TO277A03rev5



BOTTOM VIEW - DAP OPTION

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