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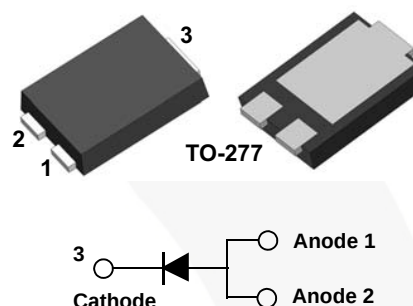
September 2015

FSV12100V

12 A, 100 V Ultra-Low VF Schottky Rectifier

Features

- Ultra-Low Forward Voltage Drop
- Low Thermal Resistance
- Very Low Profile: Typical Height of 1.1 mm
- Trench Schottky Technology
- RoHS Compliant
- Green Molding Compound as per IEC61249 Standard
- Lead Free in Compliance with EU RoHS 2011/65/EU Directive
- Qualified per AEC-Q101 Rev. C Standard



Ordering Information

Part Number	Top Mark	Package	Packing Method
FSV12100V	FSV12100V	TO-277 3L	Tape and Reel

Absolute Maximum Ratings

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 $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Value	Unit
V_{RRM}	Peak Repetitive Reverse Voltage	100	V
V_{RWM}	Working Peak Reverse Voltage	100	V
V_{RMS}	RMS Reverse Voltage	70	V
V_R	DC Blocking Voltage	100	V
$I_{F(AV)}$	Average Rectified Peak Forward Surge Current	12	A
I_{FSM}	Non-Repetitive Peak Forward Surge Current	220	A
T_J	Operating Junction Temperature Range	-55 to +150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to +150	$^\circ\text{C}$

FSV12100V — 12 A, 100 V Ultra-Low VF Schottky Rectifier

Thermal Characteristics⁽¹⁾

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Minimum Land Pattern	Maximum Land Pattern	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance	100	40	$^\circ\text{C/W}$
Ψ_{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	

Note:

- 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 $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_R	Breakdown Voltage	$I_R = 0.5 \text{ mA}$	100			V
V_F	Forward Voltage Drop	$I_F = 5 \text{ A}$		0.485		V
		$I_F = 5 \text{ A}, T_A = 125^\circ\text{C}$		0.418		
		$I_F = 12 \text{ A}$		0.598	0.670	
		$I_F = 12 \text{ A}, T_A = 125^\circ\text{C}$		0.564	0.600	
I_R	Reverse Current	$V_R = 70 \text{ V}$		0.0084		mA
		$V_R = 70 \text{ V}, T_A = 125^\circ\text{C}$		9.485		
		$V_R = 100 \text{ V}$		0.0225	0.10	
		$V_R = 100 \text{ V}, T_A = 125^\circ\text{C}$		16.56	20	
C_J	Junction Capacitance	$V_R = 4 \text{ V}, f = 1 \text{ MHz}$		1124		pF
T_{rr}	Reverse Recovery Time	$I_F = 0.5 \text{ A}, I_R = 1 \text{ A}, I_{rr} = 0.25 \text{ A}$		27.33		ns

Typical Performance Characteristics

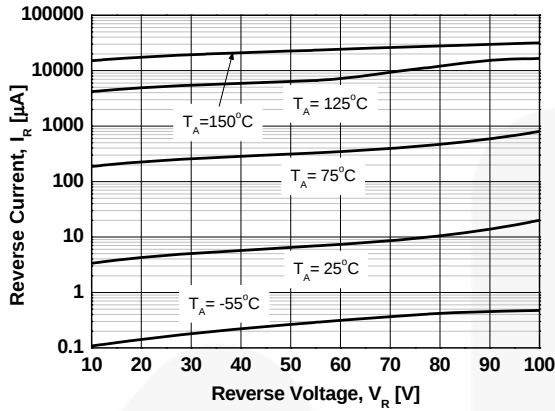


Figure 3. Typical Reverse Characteristics

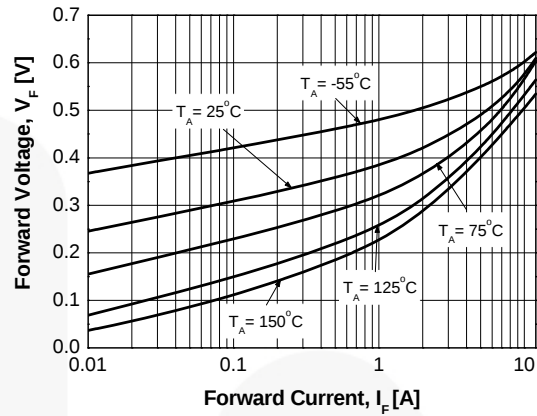


Figure 4. Typical Forward Characteristics

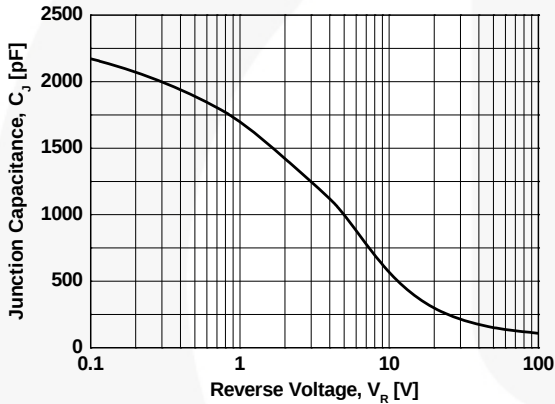


Figure 5. Typical Junction Capacitance

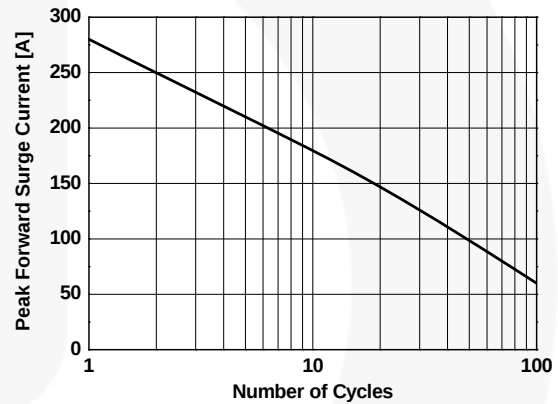


Figure 6. Maximum Non-repetitive Peak Forward Surge Current

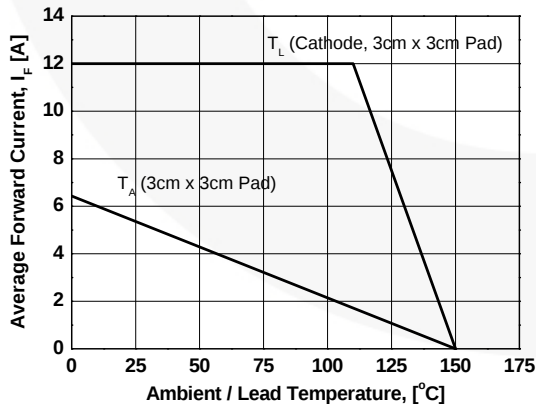
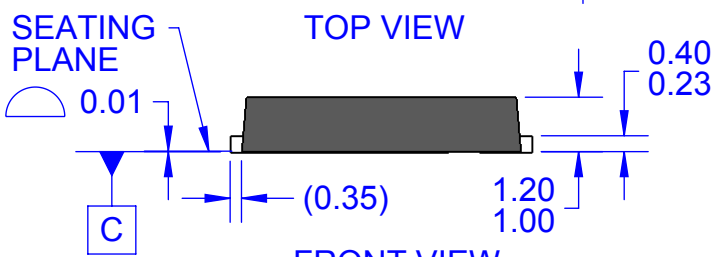


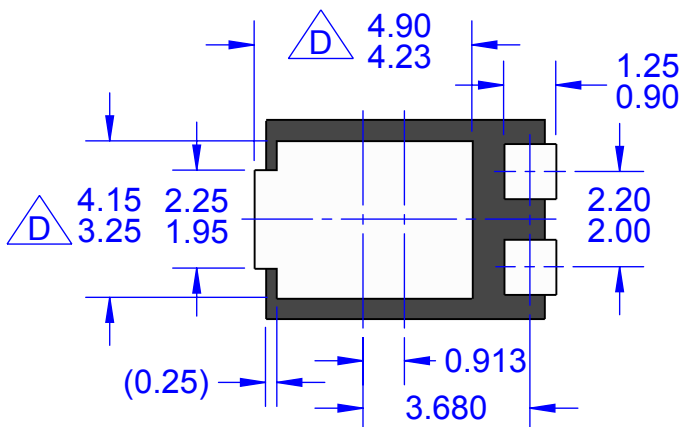
Figure 7. Forward Current Derating Curve



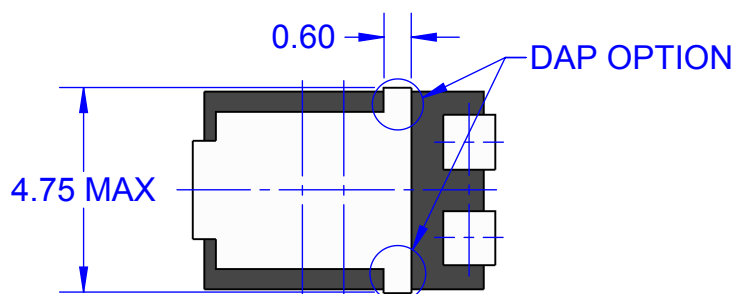
TOP VIEW



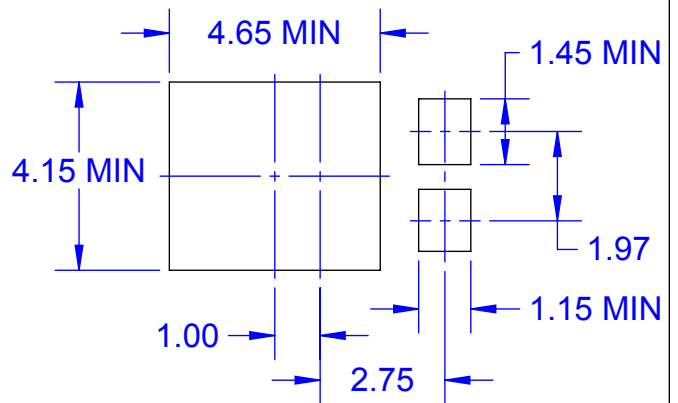
FRONT VIEW



BOTTOM VIEW



BOTTOM VIEW - DAP OPTION



LAND PATTERN RECOMMENDATION

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- B. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR EXTRUSIONS.
- C. ALL DIMENSIONS ARE IN MILLIMETERS.

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- E. DRAWING FILENAME: MKT-TO277A03rev5



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