# Onsemi

# **Ultra-Low VF Schottky Rectifier**

12 A, 100 V **FSV12100V** 

# Features

- Ultra-Low Forward Voltage Drop
- Low Thermal Resistance
- Very Low Profile: Typical Height of 1.1 mm
- Trench Schottky Technology
- Green Molding Compound as per IEC61249 Standard
- Non–DAP Option Only
- These Devices are Pb-Free, Halogen Free Free and are RoHS Compliant

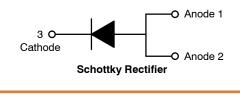
# Specifications

T<sub>STG</sub>

<b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A = 25^{\circ}C$ unless otherwise noted)					
Symbol	Rating	Value	Unit		
V <sub>RRM</sub>	Peak Repetitive Reverse Voltage	100	V		
V <sub>RWM</sub>	Working Peak Reverse Voltage	100	V		
V <sub>RMS</sub>	RMS Reverse Voltage	70	V		
V <sub>R</sub>	DC Blocking Voltage	100	V		
I <sub>F(AV)</sub>	Average Rectified Peak Forward Surge Current	12	A		
I <sub>FSM</sub>	Non-Repetitive Peak Forward Surge Current	220	A		
ТJ	Operating Junction Temperature Range	-55 to +150	°C		

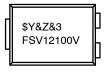
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

Storage Temperature Range





# MARKING DIAGRAM



### \$Y = onsemi Logo &Z = Assembly Plant Code

&З = Date Code (Year & Week)

FSV12100V = Specific Device Code

# **ORDERING INFORMATION**

See detailed ordering and shipping information on page 2 of this data sheet.

-55 to +150

°C

# FSV12100V

# **THERMAL CHARACTERISTICS** ( $T_A = 25^{\circ}C$ unless otherwise noted) (Note 1)

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

 The thermal resistances (R<sub>0,JA</sub> & Ψ<sub>JL</sub>) 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.



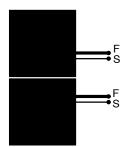


Figure 1. Minimum Land Pattern of 2 oz Copper

Figure 2. Maximum Land Pattern of 2 oz Copper

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
BV <sub>R</sub>	Breakdown Voltage	I <sub>R</sub> = 0.5 mA	100	-	-	V
V <sub>F</sub>	Forward Voltage Drop	I <sub>F</sub> = 5 A	-	0.485	-	V
		I <sub>F</sub> = 5 A, T <sub>A</sub> = 125°C	-	0.418	-	
		I <sub>F</sub> = 12 A	-	0.598	0.670	
		I <sub>F</sub> = 12 A, T <sub>A</sub> = 125°C	-	0.564	0.600	1
I <sub>R</sub>	Reverse Current	V <sub>R</sub> = 70 V	-	0.0084	-	mA
		$V_{R}$ = 70 V, $T_{A}$ = 125°C	-	9.485	-	1
		V <sub>R</sub> = 100 V	-	0.0225	0.10	1
		$V_{R}$ = 100 V, $T_{A}$ = 125°C	-	16.56	20	1
CJ	Junction Capacitance	V <sub>R</sub> = 4 V, f = 1 MHz	-	1124	-	pF
T <sub>rr</sub>	Reverse Recovery Time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1 A, I <sub>rr</sub> = 0.25 A	-	27.33	-	ns

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

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.

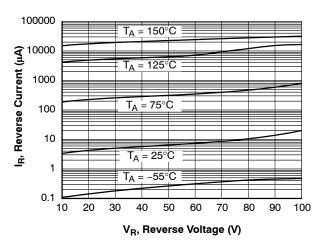
# **ORDERING INFORMATION**

Part Number	Top Mark	Package	Shipping <sup>†</sup>
FSV12100V	FSV12100V	TO–277 3L (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.

# FSV12100V

# **TYPICAL PERFORMANCE CHARACTERISTICS**





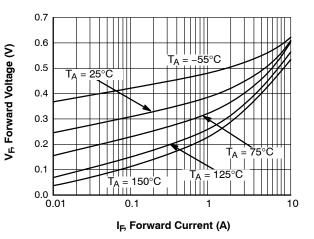


Figure 4. Typical Forward Characteristics

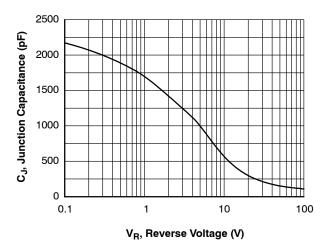


Figure 5. Typical Junction Capacitance

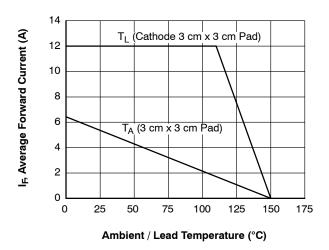
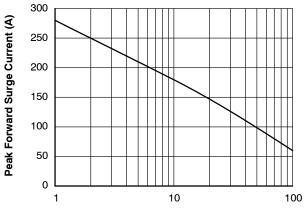


Figure 7. Forward Current Derating Curve



Number of Cycles

Figure 6. Maximum Non–Repetitive Peak Forward Surge Current

TO-277-3LD CASE 340BQ **ISSUE O** DATE 30 SEP 2016 6.65 6.35 6.15 В 1.40 1.10 (2X) A 5.67 4.65 MIN 1.45 MIN 4.63 4.15 MIN 4.25 1.97 0.63 0.43 (2X) 1.15 MIN **TOP VIEW** 1.00 0.01 -2.75 SEATING PLANE LAND PATTERN RECOMMENDATION 1.20 (0.35) -1.00 0.40 **FRONT VIEW** С 0.23 4.90 4.23 NOTES: UNLESS OTHERWISE SPECIFIED Ď 1.25 0.90 A. PACKAGE REFERENCE: JEDEC TO-277 **B. DIMENSIONS ARE EXCLUSIVE OF** BURRS, MOLD FLASH, AND TIE BAR 2.20 EXTRUSIONS. 4.15 3.25 2.25 ∕D` 2.00 C. ALL DIMENSIONS ARE IN MILLIMETERS. 1.95 /D` DOES NOT COMPLY TO JEDEC STANDARD VALUE. **-** 0.913 (0.25)3,680 **BOTTOM VIEW** 0.60 -**DAP OPTION** 4.75 MAX 3.81

# **BOTTOM VIEW – DAP OPTION**

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DESCRIPTION:	TO-277-3LD		PAGE 1 OF 1		

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