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

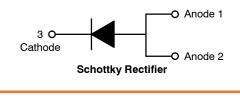
Specifications

T_{STG}

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^{\circ}C$ unless otherwise noted)					
Symbol	Rating	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		
ТJ	Operating Junction Temperature Range	-55 to +150	°C		

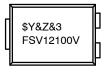
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

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
Ψ_{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_{0,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.



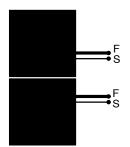


Figure 1. Minimum Land Pattern of 2 oz Copper

Figure 2. Maximum Land Pattern of 2 oz Copper

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

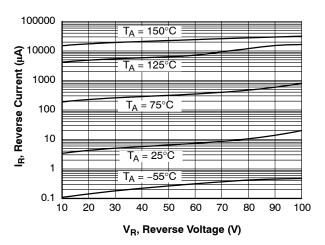
ORDERING INFORMATION

Part Number	Top Mark	Package	Shipping [†]
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





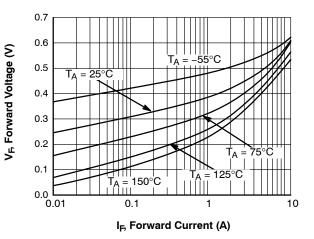


Figure 4. Typical Forward Characteristics

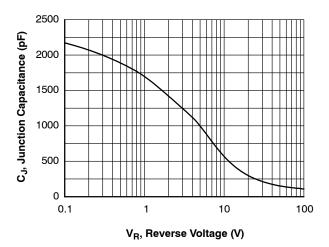


Figure 5. Typical Junction Capacitance

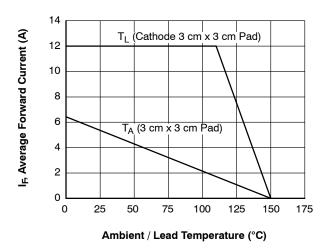
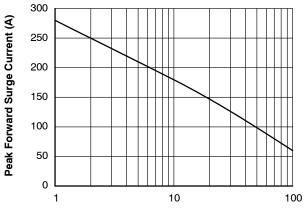


Figure 7. Forward Current Derating Curve



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

		Electronic versions are uncontrolled except when accessed directly from Printed versions are uncontrolled except when stamped "CONTROLLED (re uncontrolled except when accessed directly from the Document Repository. uncontrolled except when stamped "CONTROLLED COPY" in red.		
DESCRIPTION:	TO-277-3LD		PAGE 1 OF 1		

onsemi and ONSEMI are trademarks of Semiconductor Components Industries, LLC dba onsemi or its subsidiaries in the United States and/or other countries. onsemi reserves the right to make changes without further notice to any products herein. onsemi makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does onsemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. onsemi does not convey any license under its patent rights of others.

onsemi, ONSEMI, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "onsemi" or its affiliates and/or subsidiaries in the United States and/or other countries. onsemi owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of onsemi's product/patent coverage may be accessed at <u>www.onsemi.com/site/pdf/Patent_Marking.pdf</u>. onsemi reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and onsemi makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does onsemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or indental damages. Buyer is responsible for its products and applications using onsemi products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by onsemi. "Typical" parameters which may be provided in onsemi data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. onsemi does not convey any license under any of its intellectual property rights nor the rights of others. onsemi products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification. Buyer shall indemnify and hold onsemi and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs,

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:

Technical Library: www.onsemi.com/design/resources/technical-documentation onsemi Website: www.onsemi.com

ONLINE SUPPORT: <u>www.onsemi.com/support</u> For additional information, please contact your local Sales Representative at <u>www.onsemi.com/support/sales</u>