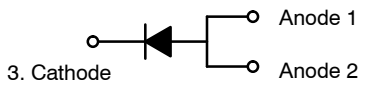
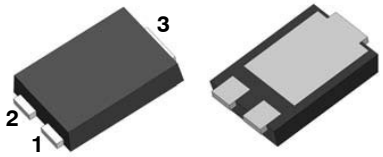
Schottky Rectifier

10 A, 60 V Ultra-Low VF

FSV1060V



Schottky Rectifier



TO−277−3LD
CASE 340BQ

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.

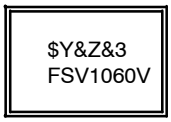
Features

- 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

MARKING DIAGRAM



$Y	= **onsemi** 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.

© Semiconductor Components Industries, LLC, 2014

September, 2024 − Rev. 2
Publication Order Number:
FSV1060V/D

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

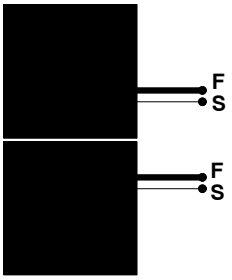


Figure 2. Maximum Land Pattern of 2 oz Copper

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

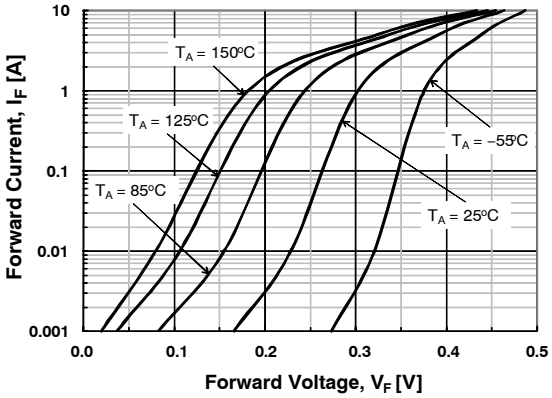


Figure 3. Forward Current Characteristics

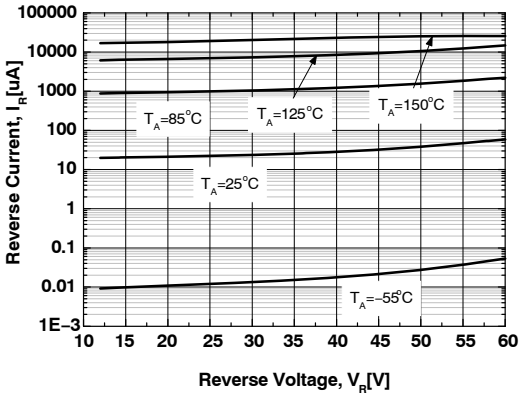


Figure 4. Typical Reverse Characteristics

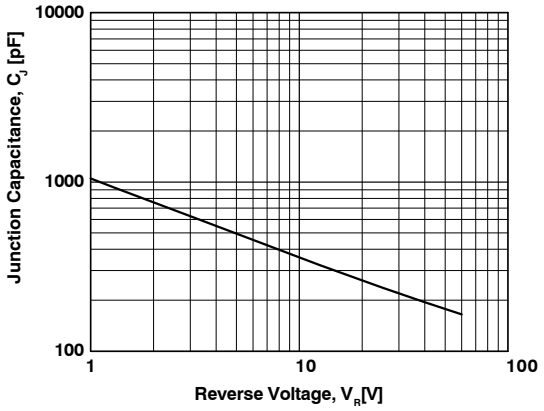


Figure 5. Typical Junction Capacitance

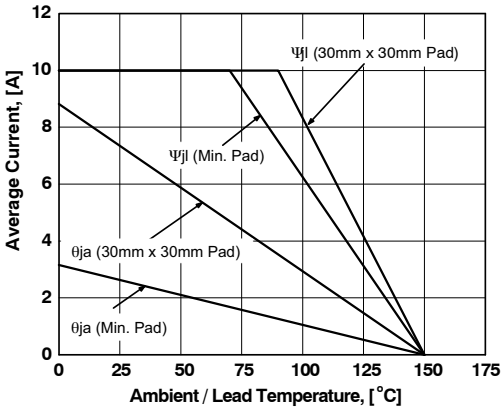


Figure 6. Forward Current Derating Curve

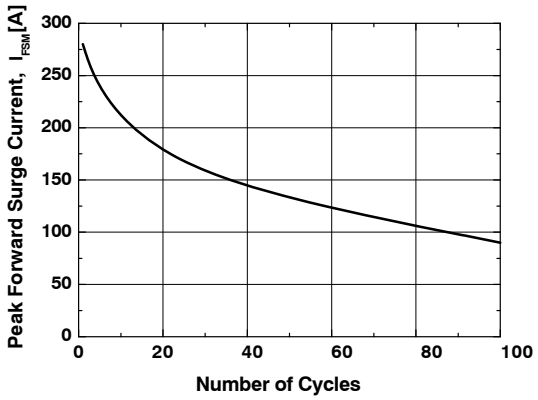
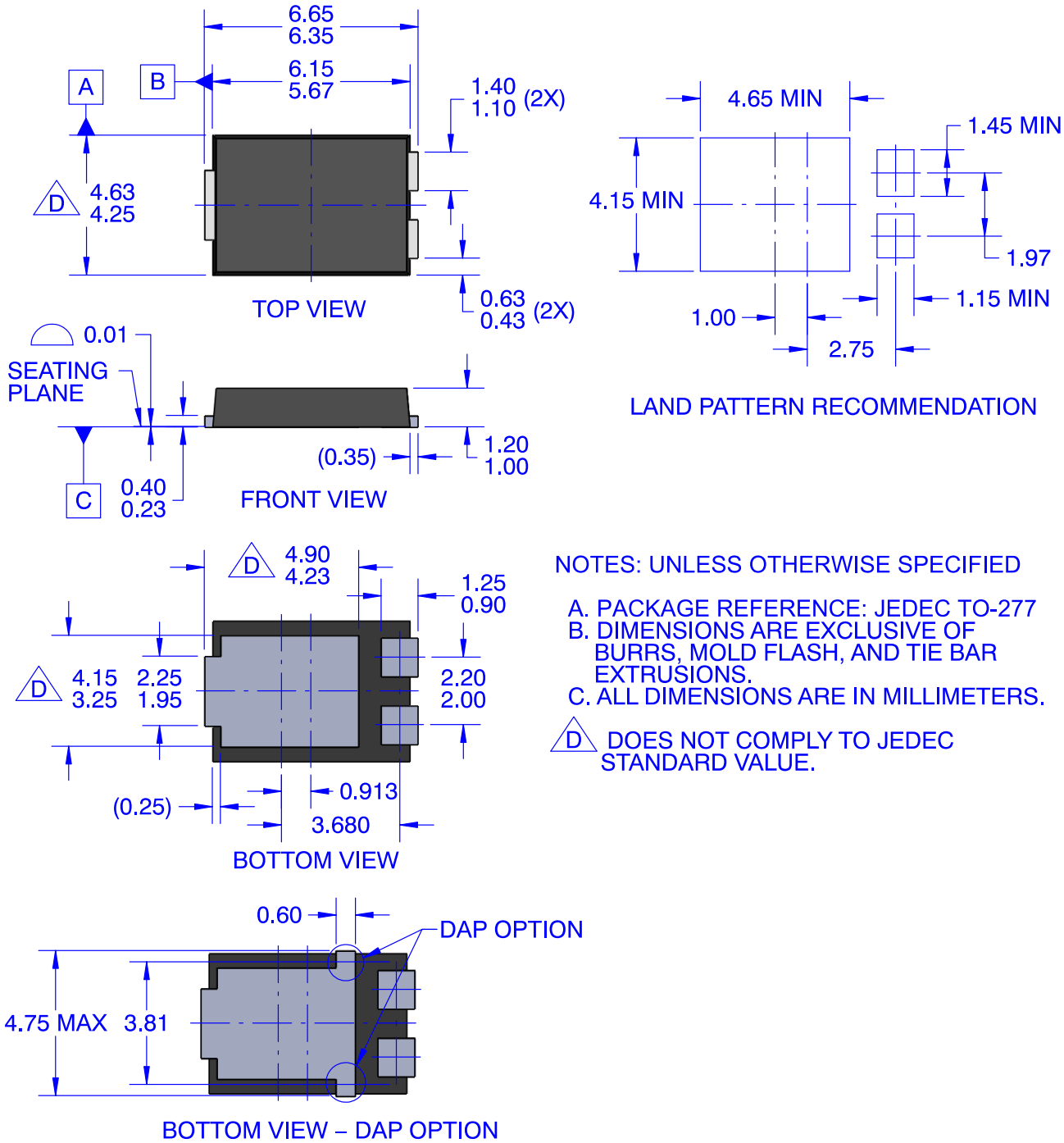


Figure 7. Surge Current Derating Curve

TO−277−3LD
CASE 340BQ
ISSUE O

DATE 30 SEP 2016



NOTES: UNLESS OTHERWISE SPECIFIED

A. PACKAGE REFERENCE: JEDEC TO-277
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.

DOCUMENT NUMBER:	**98AON13861G**	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are 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 nor the 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 www.onsemi.com/site/pdf/Patent−Marking.pdf. **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 incidental 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 in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:
Technical Library: www.onsemi.com/design/resources/technical−documentation
onsemi Website: www.onsemi.com

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