

# Fast Rectifiers

## ES1F-ES1J

### Features

- For Surface Mount Applications
- Glass Passivated Junction
- Low Profile Package
- Easy Pick and Place
- Built-in Strain Relief
- Superfast Recovery Times for High Efficiency

### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Value				Unit
		ES1F	ES1G	ES1H	ES1J	
$V_{RRM}$	Maximum Repetitive Reverse Voltage	300	400	500	600	V
$I_{F(AV)}$	Average Rectified Forward Current	1.0				A
$I_{FSM}$	Non-repetitive Peak Forward Surge Current 8.3 ms Single Half-Sine-Wave (JEDEC method)	30				A
$T_J$	Operating Junction Temperature Range	-55 to 150				$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-55 to 150				$^\circ\text{C}$
$P_D$	Power Dissipation	1.47				W

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.

### THERMAL CHARACTERISTICS

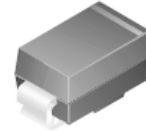
Symbol	Characteristics	Value	Unit
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient (Note 1)	85	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case (Note 1)	61	$^\circ\text{C/W}$
$R_{\theta JL}$	Thermal Resistance, Junction-to-Lead (Note 1)	35	$^\circ\text{C/W}$

1. P. C. B mounted on  $0.2'' \times 0.2''$  ( $5 \times 5$  mm) copper Pad Area.

### ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ , unless otherwise noted)

Symbol	Characteristics	Value				Unit
		ES1F	ES1G	ES1H	ES1J	
V <sub>F</sub>	Maximum Forward Voltage @ I <sub>F</sub> = 1.0 A	1.3		1.7		V
T <sub>rr</sub>	Maximum Reverse Recovery Time, I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>RR</sub> = 0.25 A	35				ns
I <sub>R</sub>	Maximum Reverse Current @ rated V <sub>R</sub> T <sub>A</sub> = 25°C T <sub>A</sub> = 100°C	5.0 100				μA
C <sub>j</sub>	Typical Junction Capacitance, V <sub>R</sub> = 4.0 V, f = 1.0 MHz	10.0		8.0		pF

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.



SMA (DO-214AC)  
Color Band Denotes Cathode  
CASE 403AE

### ORDERING INFORMATION

Device	Package	Shipping <sup>†</sup>
ES1F	SMA (Pb-Free)	7500 / Tape & Reel
ES1G	SMA (Pb-Free)	7500 / Tape & Reel
ES1H	SMA (Pb-Free)	7500 / Tape & Reel
ES1J	SMA (Pb-Free)	7500 / Tape & Reel

<sup>†</sup>For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, [BRD8011/D](#).

TYPICAL PERFORMANCE CHARACTERISTICS

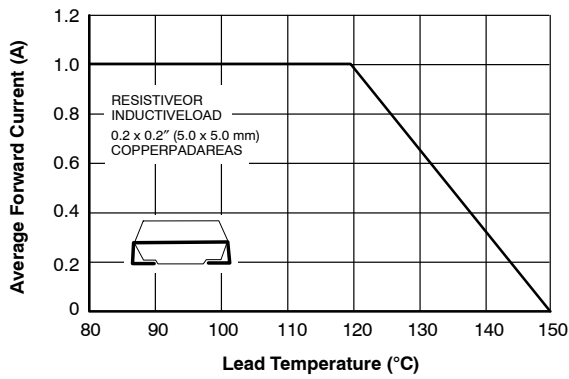


Figure 1. Maximum Forward Current Derating Curve

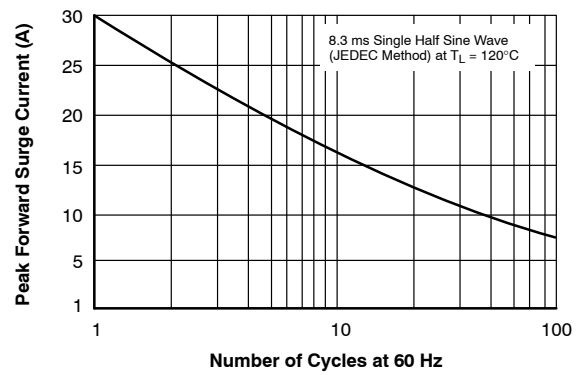


Figure 2. Maximum Non-repetitive Peak Forward Surge Current

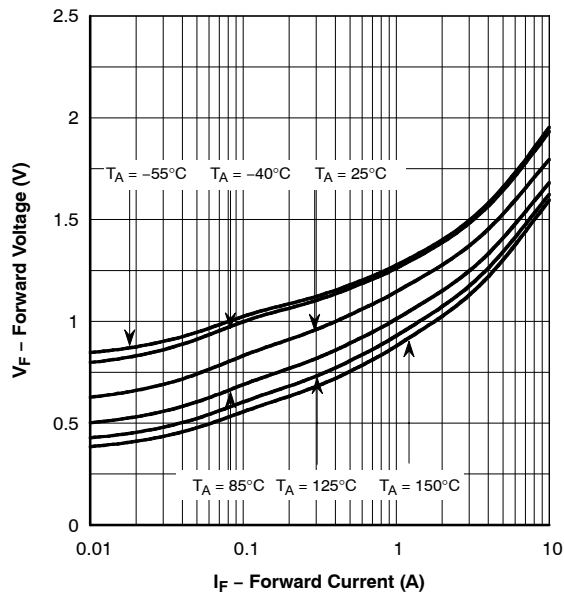


Figure 3. Forward Current vs. Forward Voltage

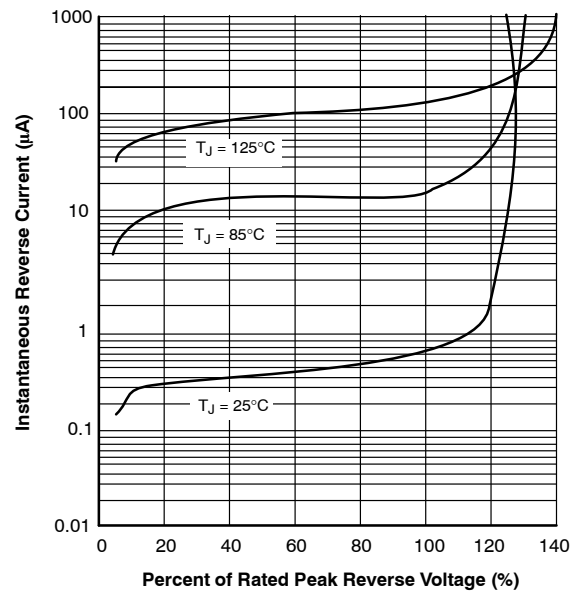


Figure 4. Typical Reverse Characteristics

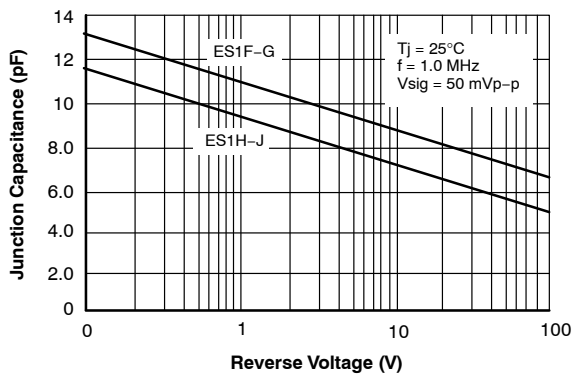
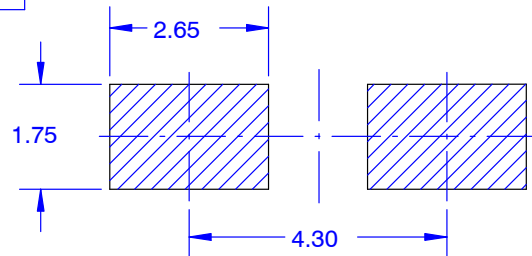
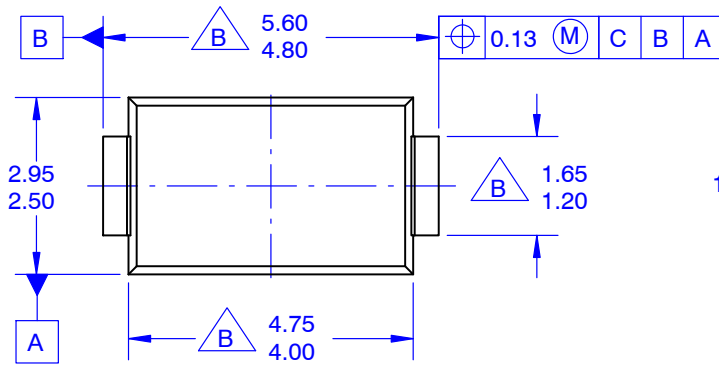


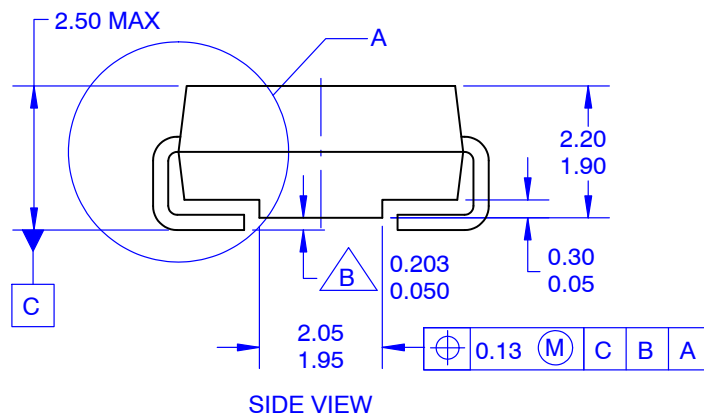
Figure 5. Typical Junction Capacitance

**SMA**  
**CASE 403AE**  
**ISSUE O**

DATE 31 AUG 2016

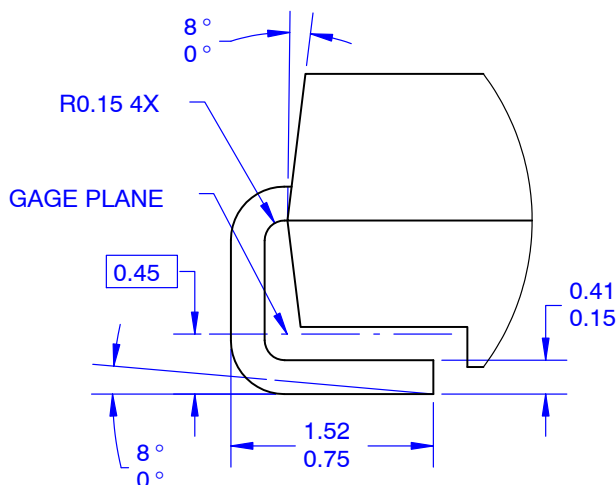


LAND PATTERN RECOMMENDATION



**NOTES:**

- A. EXCEPT WHERE NOTED, CONFORMS TO JEDEC DO214 VARIATION AC.
- B. DOES NOT COMPLY JEDEC STANDARD VALUE.
- C. ALL DIMENSIONS ARE IN MILLIMETERS.
- D. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR PROTRUSIONS.
- E. DIMENSIONS AND TOLERANCE AS PER ASME Y14.5-2009.
- E. LAND PATTERN STD. DIOM5025X231M



DETAIL A  
SCALE 20 : 1

<b>DOCUMENT NUMBER:</b>	<b>98AON13440G</b>	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.
<b>DESCRIPTION:</b>	<b>SMA</b>	<b>PAGE 1 OF 1</b>

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](http://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](http://www.onsemi.com/design/resources/technical-documentation)  
onsemi Website: [www.onsemi.com](http://www.onsemi.com)

### ONLINE SUPPORT: [www.onsemi.com/support](http://www.onsemi.com/support)

For additional information, please contact your local Sales Representative at  
[www.onsemi.com/support/sales](http://www.onsemi.com/support/sales)