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# 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<br>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

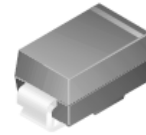
| Symbol          | Characteristics                                  | Value | Unit                      |
|-----------------|--------------------------------------------------|-------|---------------------------|
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient (Note 1) | 85    | $^\circ\text{C}/\text{W}$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

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,<br>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><br>T <sub>A</sub> = 25°C<br>T <sub>A</sub> = 100°C          | 5.0<br>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](#).

# ES1F-ES1J

## TYPICAL PERFORMANCE CHARACTERISTICS

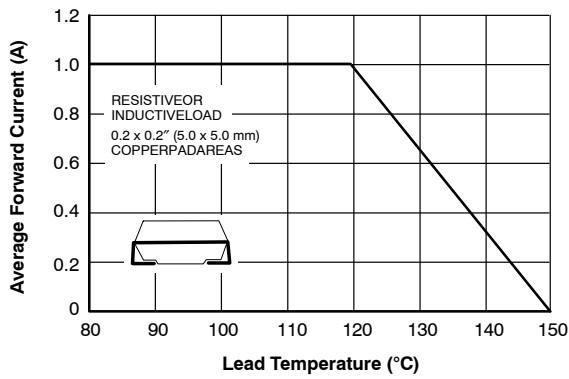


Figure 1. Maximum Forward Current Derating Curve

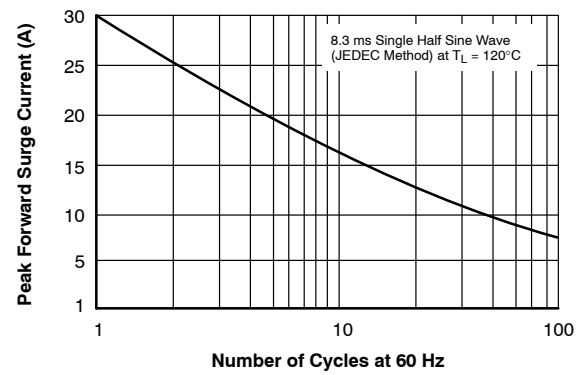


Figure 2. Maximum Non-repetitive Peak Forward Surge Current

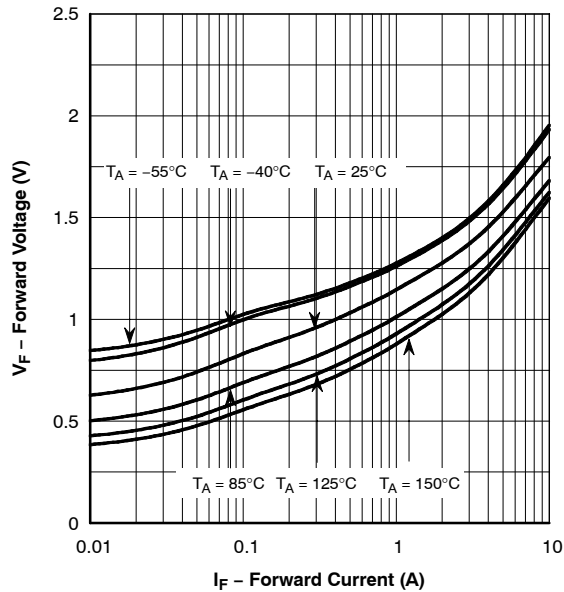


Figure 3. Forward Current vs. Forward Voltage

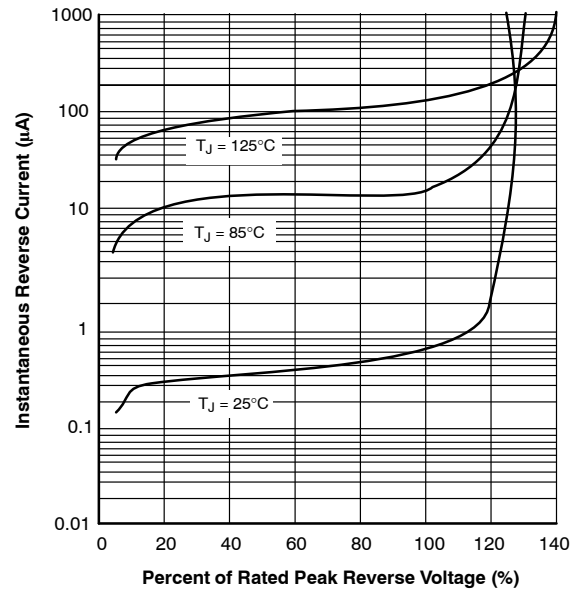


Figure 4. Typical Reverse Characteristics

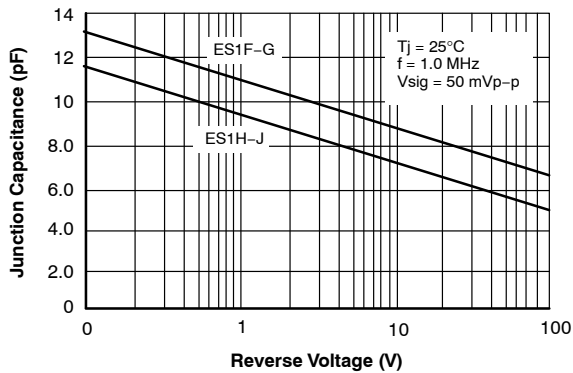


Figure 5. Typical Junction Capacitance

### SMA CASE 403AE ISSUE O

DATE 31 AUG 2016

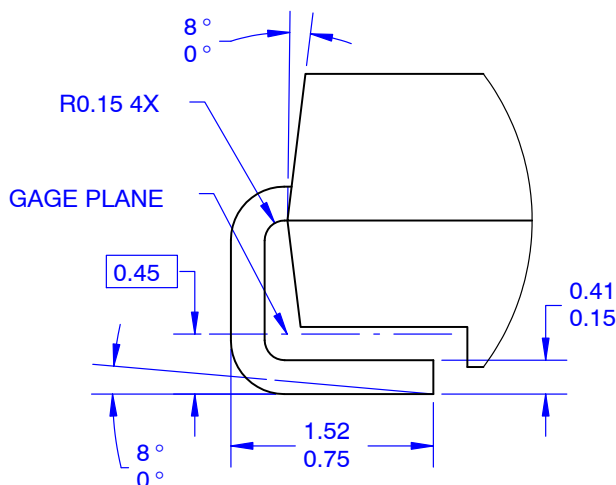


LAND PATTERN RECOMMENDATION



#### 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

|                  |             |                                                                                                                                                                                  |
|------------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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