

# Surface Mount Schottky Barrier Rectifiers

## 1 A, 20 V - 150 V

### SS12FP - S115FP

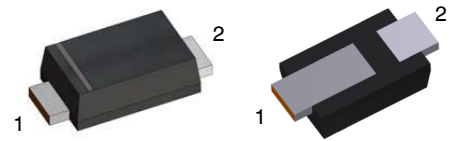
#### Features

- Larger Cathode Pad for Improved Power Dissipation
- Ultra Thin Profile – Package Height < 1.0 mm
- High Surge Current Capability
- Low Power Loss, High Efficiency
- UL Flammability 94V-0 Classification
- MSL 1 per J-STD-020
- These Devices are Pb-Free and are RoHS Compliant

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

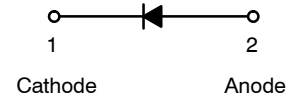
| Symbol             | Parameter                                                                                          | Value       |            |             |            |            |            | Unit |
|--------------------|----------------------------------------------------------------------------------------------------|-------------|------------|-------------|------------|------------|------------|------|
|                    |                                                                                                    | SS12<br>FP  | SS13<br>FP | SS14<br>FP  | SS16<br>FP | S110<br>FP | S115<br>FP |      |
| V <sub>RRM</sub>   | Repetitive<br>Peak<br>Reverse Voltage                                                              | 20          | 30         | 40          | 60         | 100        | 150        | V    |
| V <sub>RMS</sub>   | RMS<br>Reverse Voltage                                                                             | 14          | 21         | 28          | 42         | 70         | 105        | V    |
| V <sub>R</sub>     | DC<br>Blocking Voltage                                                                             | 20          | 30         | 40          | 60         | 100        | 150        | V    |
| I <sub>F(AV)</sub> | Average Forward<br>Rectified Current                                                               | 1           |            |             |            |            |            | A    |
| I <sub>FSM</sub>   | Peak Forward<br>Surge Current:<br>8.3 ms Single<br>Half Sine-Wave<br>Superimposed on<br>Rated Load | 30          |            |             |            |            |            | A    |
| T <sub>J</sub>     | Operating<br>Junction<br>Temperature<br>Range                                                      | -55 to +125 |            | -55 to +150 |            |            |            | °C   |
| T <sub>STG</sub>   | Storage<br>Temperature<br>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.

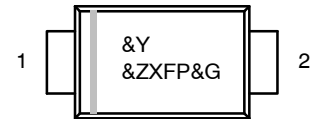


Band Indicates Cathode

SOD-123EP  
CASE 425AC



#### MARKING DIAGRAM



&Y = Binary Calendar Year Coding  
 &Z = Assembly Plant Code  
 XFP = Specific Device Code  
 X = 0, 2, 3, 4, 6, A  
 &G = Single Digit Week Code

#### ORDERING INFORMATION

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

## SS12FP – S115FP

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

| Symbol                | Parameter                                          | Value | Unit               |
|-----------------------|----------------------------------------------------|-------|--------------------|
| $\Psi_{\text{JL}}$    | Thermal Characteristics, Junction-to-Lead (Note 2) | 10    | $^\circ\text{C/W}$ |
| $R_{\theta\text{JA}}$ | Thermal Resistance, Junction-to-Ambient            | 140   | $^\circ\text{C/W}$ |

1. Per JESD51-3 recommended thermal test board. Device mounted on FR-4 PCB, board size = 76.2 mm x 114.3 mm.
2. Thermocouple soldered at cathode lead.

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

| Symbol          | Parameter                                       | Conditions                                                                   | Value      |            |            |            |            |            | Unit |
|-----------------|-------------------------------------------------|------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|------|
|                 |                                                 |                                                                              | SS12<br>FP | SS13<br>FP | SS14<br>FP | SS16<br>FP | S110<br>FP | S115<br>FP |      |
| V <sub>F</sub>  | Maximum Instantaneous Forward Voltage (Note 3)  | I <sub>F</sub> = 0.5 A                                                       |            |            | 0.51       | 0.58       | 0.70       | 0.75       | V    |
|                 |                                                 | I <sub>F</sub> = 1.0 A                                                       | 0.45       | 0.50       | 0.55       | 0.70       | 0.80       | 0.90       |      |
| I <sub>R</sub>  | Maximum Reverse Current at Rated V <sub>R</sub> | T <sub>J</sub> = 25°C                                                        | 0.40       |            |            |            | 0.05       |            | mA   |
|                 |                                                 | T <sub>J</sub> = 125°C                                                       |            |            |            |            | 0.50       |            |      |
| C <sub>J</sub>  | Typical Junction Capacitance                    | V <sub>R</sub> = 4 V,<br>f = 1 MHz                                           | 54         |            |            |            | 28         |            | pF   |
| T <sub>rr</sub> | Typical Reverse Recovery Time                   | I <sub>F</sub> = 0.5 A,<br>I <sub>R</sub> = 1 A,<br>I <sub>RR</sub> = 0.25 A | 6          |            |            |            | 14         |            | ns   |

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.

3. Pulse test with  $PW = 300\text{ }\mu\text{s}$ , 1% duty cycle.

### ORDERING INFORMATION

| Part Number | Device Code Marking | Package   | Packing Method† |
|-------------|---------------------|-----------|-----------------|
| SS12FP      | 2FP                 | SOD-123EP | Tape and Reel   |
| SS13FP      | 3FP                 | SOD-123EP | Tape and Reel   |
| SS14FP      | 4FP                 | SOD-123EP | Tape and Reel   |
| SS16FP      | 6FP                 | SOD-123EP | Tape and Reel   |
| S110FP      | 0FP                 | SOD-123EP | Tape and Reel   |
| S115FP      | AFP                 | SOD-123EP | Tape and 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.

# SS12FP - S115FP

## TYPICAL PERFORMANCE CHARACTERISTICS

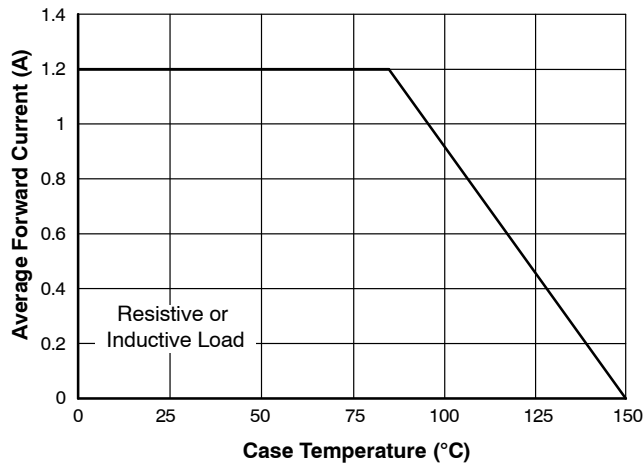


Figure 1. Forward Current Derating Curve

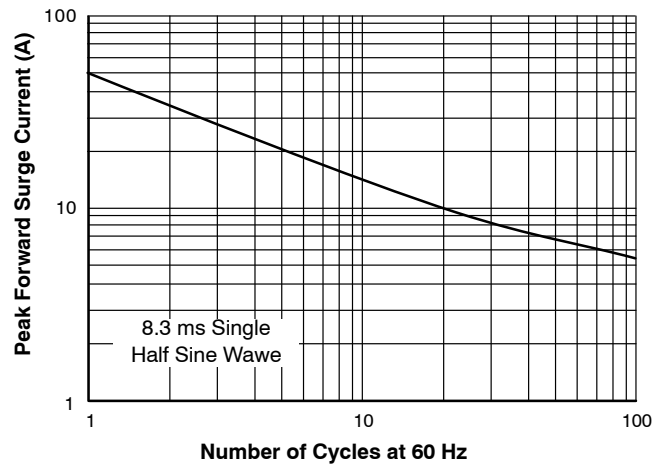


Figure 2. Maximum Non-Repetitive Forward Surge Current

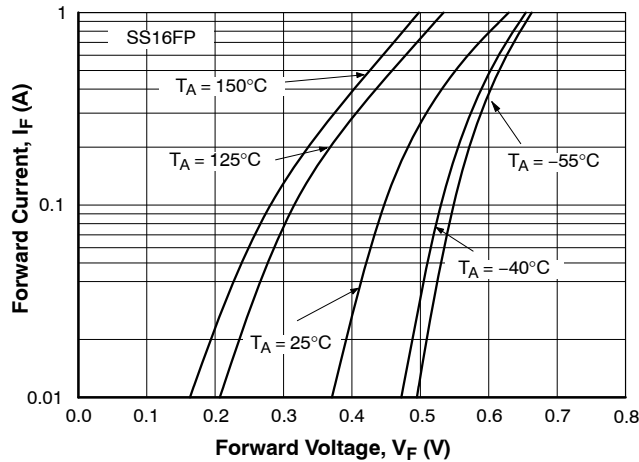


Figure 3. Typical Forward Characteristics

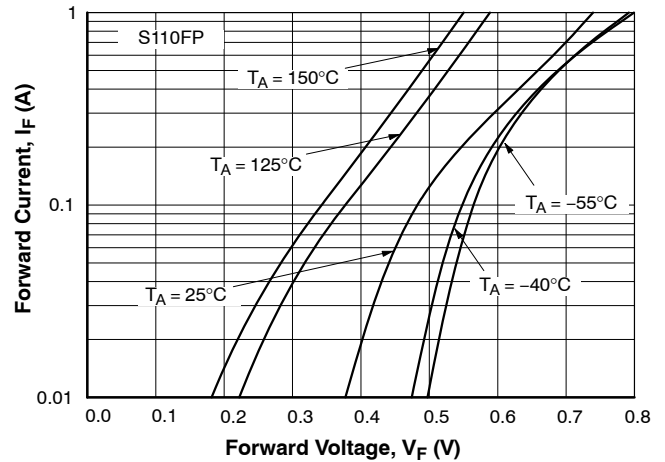


Figure 4. Typical Forward Characteristics

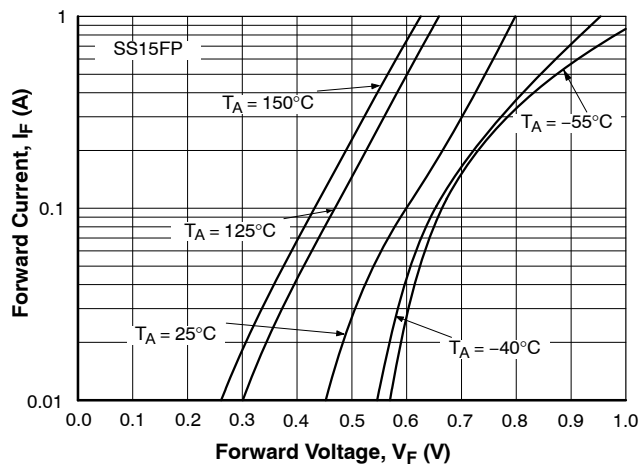


Figure 5. Typical Forward Characteristic

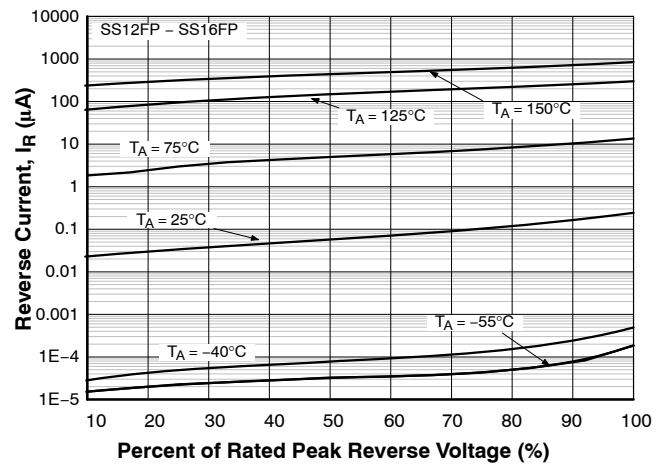


Figure 6. Typical Reverse Characteristics

# SS12FP - S115FP

## TYPICAL PERFORMANCE CHARACTERISTICS

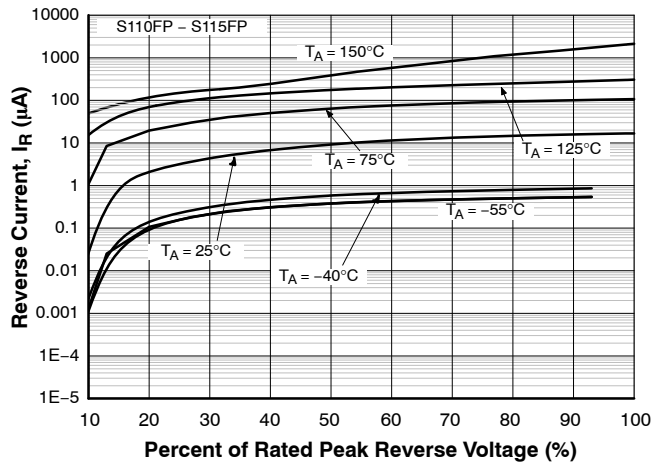


Figure 7. Typical Reverse Characteristic

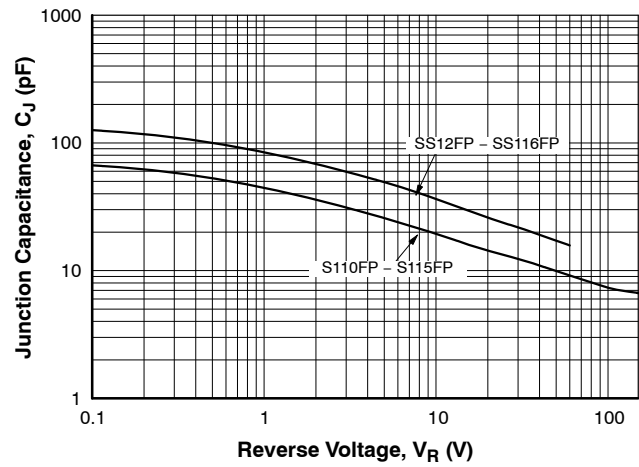
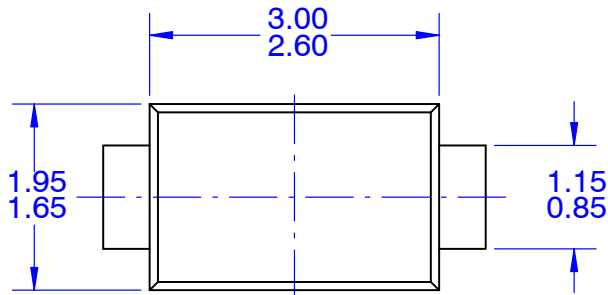
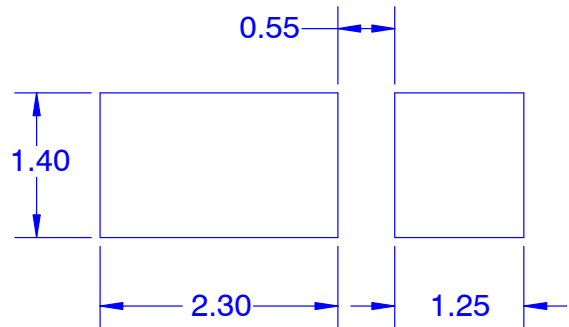


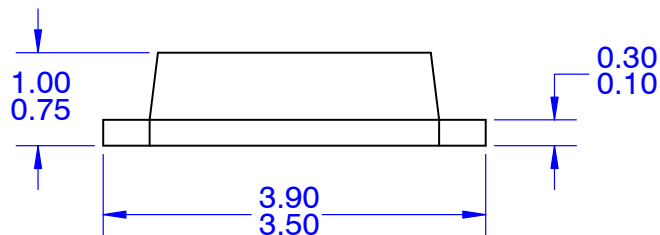
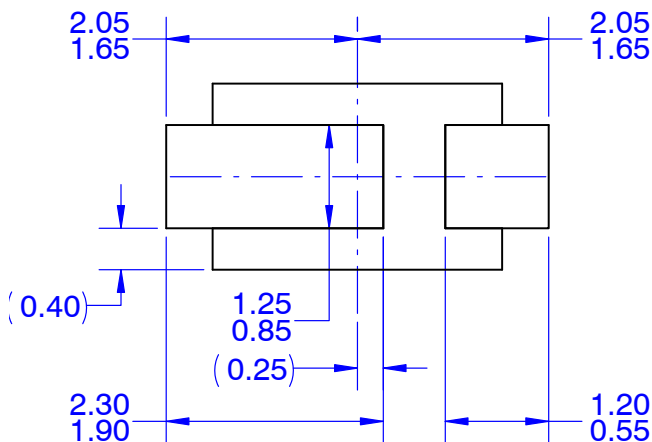
Figure 8. Typical Junction Capacitance

**SOD-123EP**  
**CASE 425AC**  
**ISSUE O**

DATE 31 AUG 2016



**LAND PATTERN RECOMMENDATION**  
LONG PAD IS CATHODE



**NOTES:**

- A. NO INDUSTRY STANDARD APPLIES TO THIS PACKAGE.
- B. ALL DIMENSIONS ARE IN MILLIMETERS.
- C. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR PROTRUSIONS.

|                         |                    |                                                                                                                                                                                     |
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