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March 2016

# SS15FA - S115FA

## 1 A, 50 V - 150 V Surface Mount Schottky Barrier Rectifiers

### Features

- Low Power Loss, High Efficiency
  - Guard Ring for Overvoltage Protection
  - High Surge Current Capability
  - UL Flammability 94V-0 Classification
  - MSL 1 per J-STD-020
  - RoHS Compliant / Green Molding Compound
  - Industrial Device Qualified per AEC-Q101 Standards
- \* See authorized use policy



SOD-123FA



### Ordering Information

| Part Number | Top Mark | Package   | Packing Method |
|-------------|----------|-----------|----------------|
| SS15FA      | 15L      | SOD-123FA | Tape and Reel  |
| SS16FA      | 16L      | SOD-123FA | Tape and Reel  |
| SS19FA      | 19L      | SOD-123FA | Tape and Reel  |
| S110FA      | 10L      | SOD-123FA | Tape and Reel  |
| S115FA      | 1AL      | SOD-123FA | Tape and Reel  |

SS15FA - S115FA — 1 A, 50 V - 150 V Surface Mount Schottky Barrier Rectifiers

## Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol      | Parameter                                                                           | Value       |         |         |         |         | Unit             |
|-------------|-------------------------------------------------------------------------------------|-------------|---------|---------|---------|---------|------------------|
|             |                                                                                     | SS15 FA     | SS16 FA | SS19 FA | S110 FA | S115 FA |                  |
| $V_{RRM}$   | Repetitive Peak Reverse Voltage                                                     | 50          | 60      | 90      | 100     | 150     | V                |
| $V_{RMS}$   | RMS Reverse Voltage                                                                 | 35          | 42      | 63      | 70      | 105     | V                |
| $V_R$       | DC Blocking Voltage                                                                 | 50          | 60      | 90      | 100     | 150     | V                |
| $I_{F(AV)}$ | Average Forward Rectified Current                                                   | 1           |         |         |         |         | A                |
| $I_{FSM}$   | Peak Forward Surge Current: 8.3 ms Single Half Sine-Wave Superimposed on Rated Load | 30          |         |         |         |         | A                |
| $T_J$       | Operating Junction Temperature Range                                                | -55 to +150 |         |         |         |         | $^\circ\text{C}$ |
| $T_{STG}$   | Storage Temperature Range                                                           | -55 to +150 |         |         |         |         | $^\circ\text{C}$ |

## Thermal Characteristics<sup>(1)</sup>

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol          | Parameter                                 | Value | Unit               |
|-----------------|-------------------------------------------|-------|--------------------|
| $\Psi_{JL}$     | Thermal Characteristics, Junction-to-Lead | 16    | $^\circ\text{C/W}$ |
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient   | 152   | $^\circ\text{C/W}$ |

### Note:

1. Per JESD51-3 Recommended Thermal Test Board. Device mounted on FR-4 PCB, board size = 76.2mm x 114.3mm.

## Electrical Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol   | Parameter                                            | Conditions                                                                 | Value   |         |         |         |         | Unit |
|----------|------------------------------------------------------|----------------------------------------------------------------------------|---------|---------|---------|---------|---------|------|
|          |                                                      |                                                                            | SS15 FA | SS16 FA | SS19 FA | S110 FA | S115 FA |      |
| $V_F$    | Maximum Instantaneous Forward Voltage <sup>(2)</sup> | $I_F = 0.5\text{ A}$                                                       | 0.58    |         | 0.70    |         | 0.75    | V    |
|          |                                                      | $I_F = 1.0\text{ A}$                                                       | 0.70    |         | 0.80    |         | 0.90    |      |
| $I_R$    | Maximum Reverse Current at Rated $V_R$               | $T_J = 25^\circ\text{C}$                                                   | 0.4     |         | 0.05    |         |         | mA   |
|          |                                                      | $T_J = 100^\circ\text{C}$                                                  | 6.0     |         |         |         |         |      |
|          |                                                      | $T_J = 125^\circ\text{C}$                                                  |         |         | 0.5     |         |         |      |
| $C_J$    | Typical Junction Capacitance                         | $V_R = 4\text{ V}$ ,<br>$f = 1\text{ MHz}$                                 | 54      |         |         | 35      |         | pF   |
| $T_{rr}$ | Typical Reverse Recovery Time                        | $I_F = 0.5\text{ A}$ ,<br>$I_R = 1\text{ A}$ ,<br>$I_{RR} = 0.25\text{ A}$ | 5.6     |         |         | 8.3     |         | ns   |

### Note:

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

## Typical Performance Characteristics

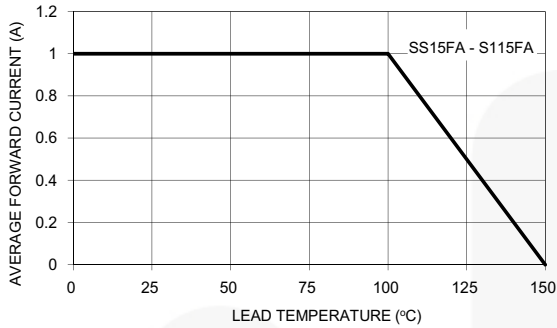


Figure 1. Forward Current Derating Curve

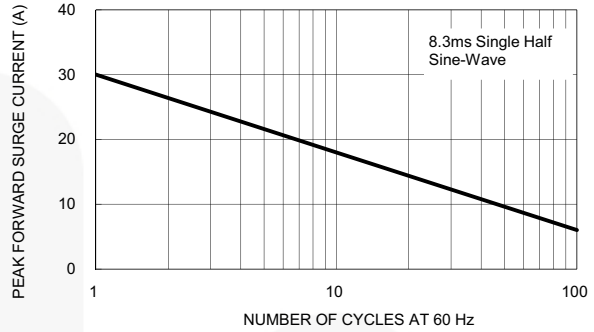


Figure 2. Maximum Non-Repetitive Forward Surge Current

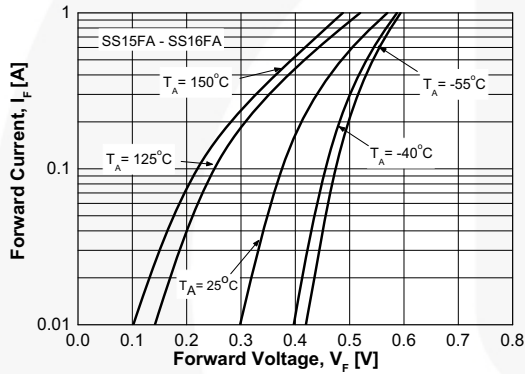


Figure 3. Typical Forward Characteristics

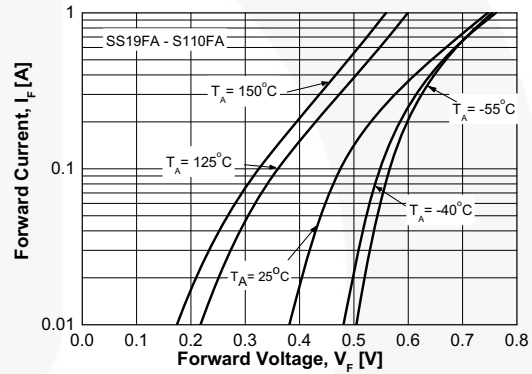


Figure 4. Typical Forward Characteristics

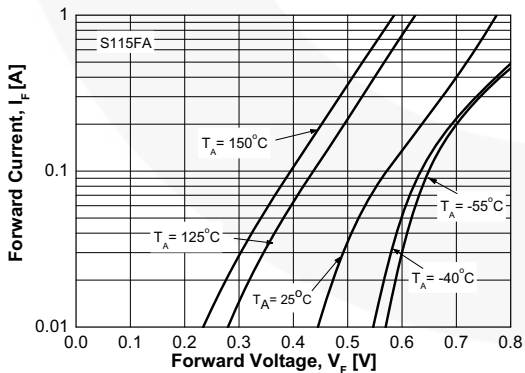


Figure 5. Typical Forward Characteristics

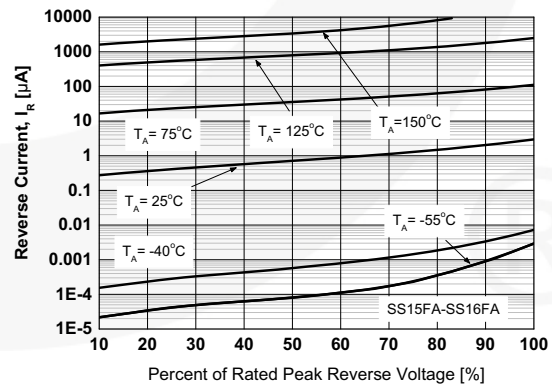


Figure 6. Typical Reverse Characteristics

## Typical Performance Characteristics (Continued)

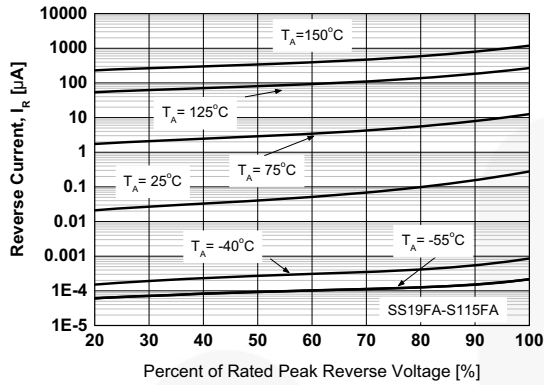


Figure 7. Typical Reverse Characteristics

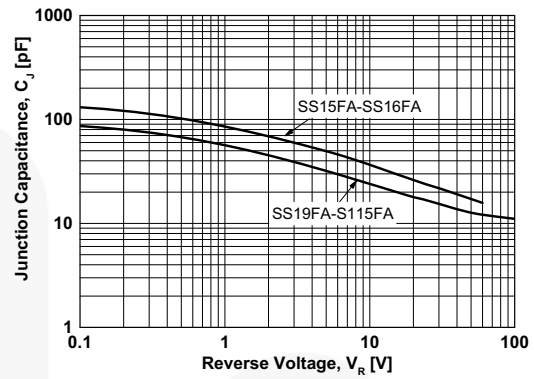
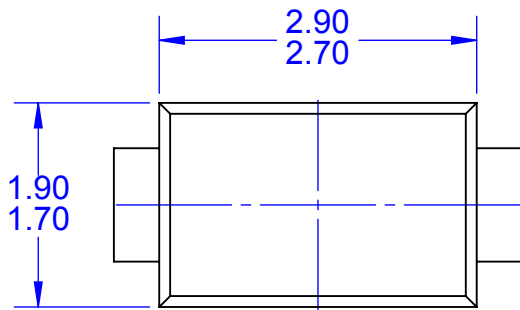
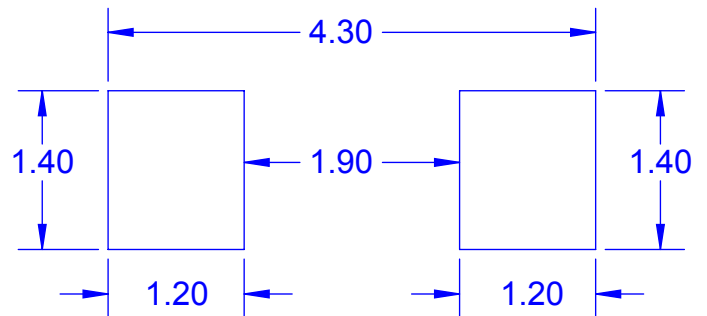


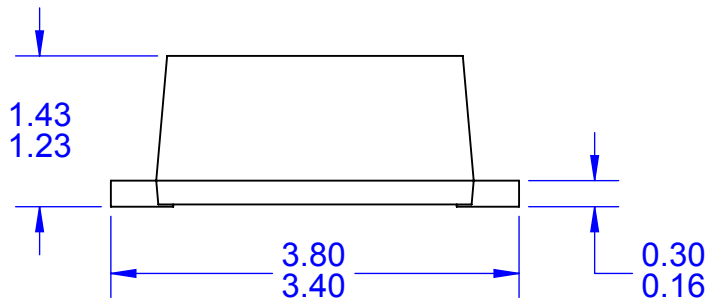
Figure 8. Typical Junction Capacitance



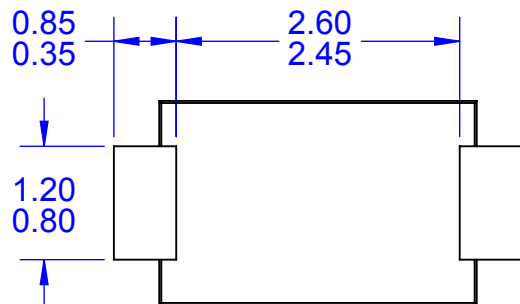
TOP VIEW



LAND PATTERN RECOMMENDATION



FRONT VIEW



BOTTOM VIEW

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