

## Surface Mount Schottky Barrier Rectifier



DO-214AC (SMA)

### FEATURES

- Low profile package
- Ideal for automated placement
- Guardring for overvoltage protection
- Low power losses, high efficiency
- Low forward voltage drop
- High surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in low voltage, high frequency inverters, freewheeling, dc-to-dc converters, and polarity protection applications.

### MECHANICAL DATA

**Case:** DO-214AC (SMA)

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

**Polarity:** Color band denotes the cathode end

### PRIMARY CHARACTERISTICS

|             |                |
|-------------|----------------|
| $I_{F(AV)}$ | 1.0 A          |
| $V_{RRM}$   | 20 V to 60 V   |
| $I_{FSM}$   | 40 A           |
| $V_F$       | 0.50 V, 0.75 V |
| $T_J$ max.  | 125 °C, 150 °C |

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

| PARAMETER  | SYMBOL      | SS12          | SS13 | SS14 | SS15          | SS16 | UNIT       |
|--|-------------|---------------|------|------|---------------|------|------------|
| Device marking code  |             | S2            | S3   | S4   | S5            | S6   | V          |
| Maximum repetitive peak reverse voltage  | $V_{RRM}$   | 20            | 30   | 40   | 50            | 60   | V          |
| Maximum RMS voltage  | $V_{RMS}$   | 14            | 21   | 28   | 35            | 42   | V          |
| Maximum DC blocking voltage  | $V_{DC}$    | 20            | 30   | 40   | 50            | 60   | V          |
| Maximum average forward rectified current at $T_L$ (Fig. 1)                        | $I_{F(AV)}$ | 1.0           |      |      |               |      | A          |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$   | 40            |      |      |               |      | A          |
| Voltage rate of change (rated $V_F$ )  | dV/dt       | 10 000        |      |      |               |      | V/ $\mu$ s |
| Operating junction temperature range   | $T_J$       | - 65 to + 125 |      |      | - 65 to + 150 |      | °C         |
| Storage temperature range  | $T_{STG}$   | - 65 to + 150 |      |      |               |      | °C         |

| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                                   |        |      |      |      |      |      |      |    |
|--|-----------------------------------|--------|------|------|------|------|------|------|----|
| PARAMETER  | TEST CONDITIONS                   | SYMBOL | SS12 | SS13 | SS14 | SS15 | SS16 | UNIT |    |
| Maximum instantaneous forward voltage <sup>(1)</sup>   | 1.0 A                             | $V_F$  | 0.50 |      |      | 0.75 |      | V    |    |
| Maximum DC reverse current at rated DC blocking voltage <sup>(1)</sup>                       | $T_A = 25\text{ }^\circ\text{C}$  | $I_R$  | 0.2  |      |      |      |      |      | mA |
|  | $T_A = 100\text{ }^\circ\text{C}$ |        | 6.0  |      |      | 5.0  |      |      |    |

**Note:**

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

| <b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                 |      |      |      |      |      |                    |  |
|---|-----------------|------|------|------|------|------|--------------------|--|
| PARAMETER   | SYMBOL          | SS12 | SS13 | SS14 | SS15 | SS16 | UNIT               |  |
| Typical thermal resistance <sup>(1)</sup>   | $R_{\theta JA}$ | 88   |      |      |      |      | $^\circ\text{C/W}$ |  |
|   | $R_{\theta JL}$ | 28   |      |      |      |      |                    |  |

**Note:**

(1) P.C.B. mounted with 0.2 x 0.2" (5.0 x 5.0 mm) copper pad areas

| <b>ORDERING INFORMATION</b> (Example) |                 |                        |               |                                    |
|---------------------------------------|-----------------|------------------------|---------------|------------------------------------|
| PREFERRED P/N                         | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
| SS14-E3/61T                           | 0.064           | 61T                    | 1800          | 7" diameter plastic tape and reel  |
| SS14-E3/5AT                           | 0.064           | 5AT                    | 7500          | 13" diameter plastic tape and reel |
| SS14HE3/61T <sup>(1)</sup>            | 0.064           | 61T                    | 1800          | 7" diameter plastic tape and reel  |
| SS14HE3/5AT <sup>(1)</sup>            | 0.064           | 5AT                    | 7500          | 13" diameter plastic tape and reel |

**Note:**

(1) Automotive grade AEC Q101 qualified

### RATINGS AND CHARACTERISTICS CURVES

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

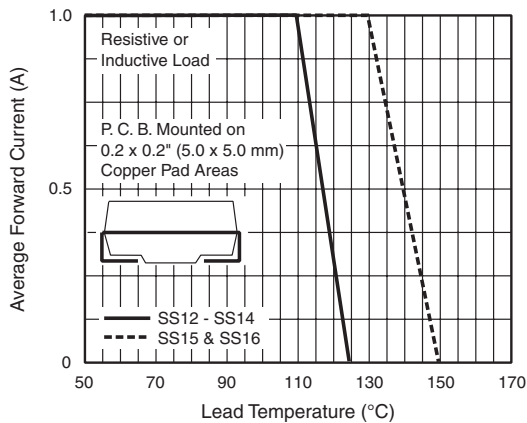


Figure 1. Forward Current Derating Curve

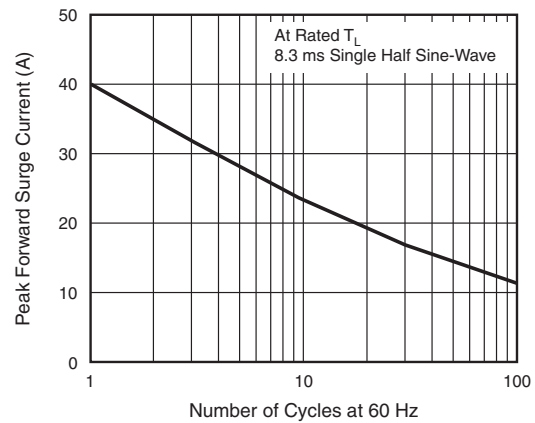


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

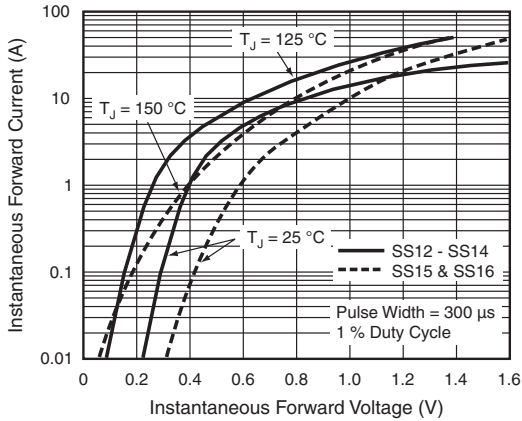


Figure 3. Typical Instantaneous Forward Characteristics

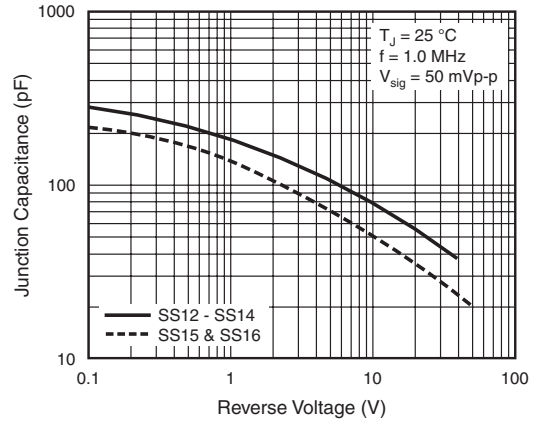


Figure 5. Typical Junction Capacitance

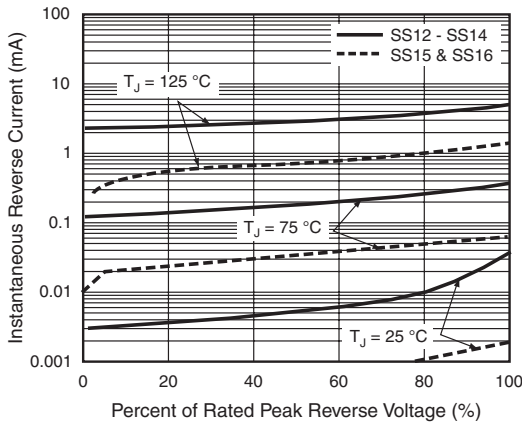
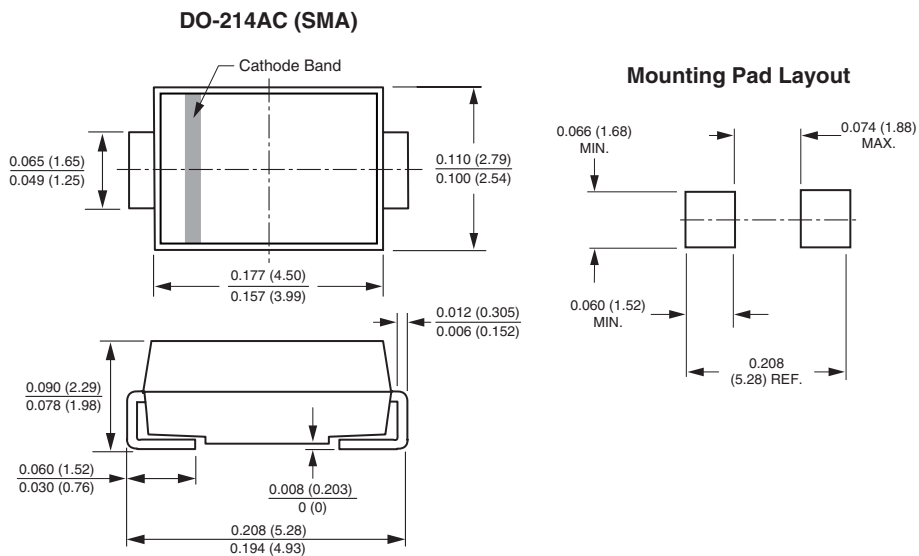


Figure 4. Typical Reverse Characteristics

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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All product specifications and data are subject to change without notice.

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