

## Surface Mount Schottky Barrier Rectifier



DO-214AC (SMA)

| PRIMARY CHARACTERISTICS |                  |
|-------------------------|------------------|
| $I_{F(AV)}$             | 2 A              |
| $V_{RRM}$               | 20 V, 30 V, 40 V |
| $I_{FSM}$               | 40 A             |
| $V_F$ at $I_F = 2.0$ A  | 0.517 V          |
| $T_J$ max.              | 150 °C           |

### FEATURES

- Low profile package
- Ideal for automated placement
- Low forward voltage drop, low power losses
- High efficiency
- 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.

(Note: These devices are not Q101 qualified.)

### 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

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

| MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)                           |                |               |       |       |            |
|---|----------------|---------------|-------|-------|------------|
| PARAMETER   | SYMBOL         | SS22S         | SS23S | SS24S | UNIT       |
| Device marking code   |                | 22S           | 23S   | 24S   | V          |
| Maximum repetitive peak reverse voltage   | $V_{RRM}$      | 20            | 30    | 40    | V          |
| Maximum average forward rectified current (Fig. 1)                                | $I_{F(AV)}$    | 2.0           |       |       | A          |
| Peak forward surge current 10 ms single half sine-wave superimposed on rated load | $I_{FSM}$      | 40            |       |       | A          |
| Voltage rate of change (rated $V_R$ )   | dV/dt          | 10 000        |       |       | V/ $\mu$ s |
| Operating junction and storage temperature range                                  | $T_J, T_{STG}$ | - 55 to + 150 |       |       | °C         |



| ELECTRICAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |  |   |        |                |           |                     |
|---|--|---|--------|----------------|-----------|---------------------|
| PARAMETER   | TEST CONDITIONS                              |   | SYMBOL | TYP            | MAX.      | UNIT                |
| Instantaneous forward voltage <sup>(1)</sup>  | $I_F = 1\text{ A}$ ,<br>$I_F = 2\text{ A}$ , | $T_J = 25\text{ }^\circ\text{C}$                                      | $V_F$  | 0.436<br>0.517 | -<br>0.55 | V                   |
| Reverse current <sup>(2)</sup>  | rated $V_R$                                  | $T_J = 25\text{ }^\circ\text{C}$<br>$T_J = 100\text{ }^\circ\text{C}$ | $I_R$  | 13<br>1.65     | 200<br>8  | $\mu\text{A}$<br>mA |
| Typical junction capacitance  | 4.0 V, 1 MHz                                 |   | $C_J$  | 130            | -         | pF                  |

**Notes:**

- (1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width  $\leq 40\text{ ms}$

| THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                                    |          |       |       |                    |
|--|------------------------------------|----------|-------|-------|--------------------|
| PARAMETER  | SYMBOL                             | SS22S    | SS23S | SS24S | UNIT               |
| Typical thermal resistance <sup>(1)</sup>  | $R_{\theta JA}$<br>$R_{\theta JL}$ | 75<br>25 |       |       | $^\circ\text{C/W}$ |

**Note:**

- (1) P.C.B. mounted with 0.4 x 0.4" (10 x 10 mm) copper pad areas

| ORDERING INFORMATION (Example) |                 |                        |               |                                    |
|--------------------------------|-----------------|------------------------|---------------|------------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
| SS24S-E3/61T                   | 0.064           | 61T                    | 1800          | 7" diameter plastic tape and reel  |
| SS24S-E3/5AT                   | 0.064           | 5AT                    | 7500          | 13" diameter plastic tape and reel |

**RATINGS AND CHARACTERISTICS CURVES**

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

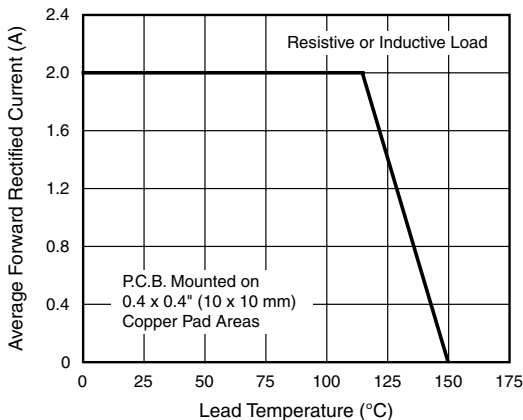


Figure 1. Forward Current Derating Curve

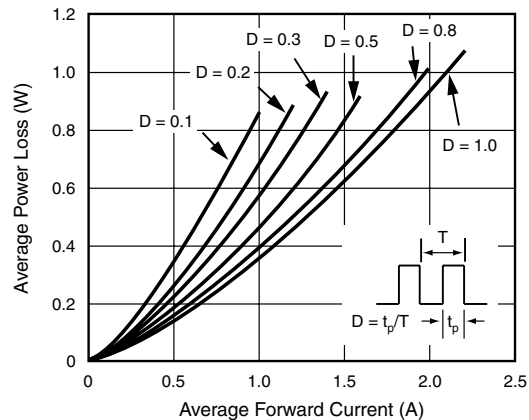


Figure 2. Forward Power Loss Characteristics

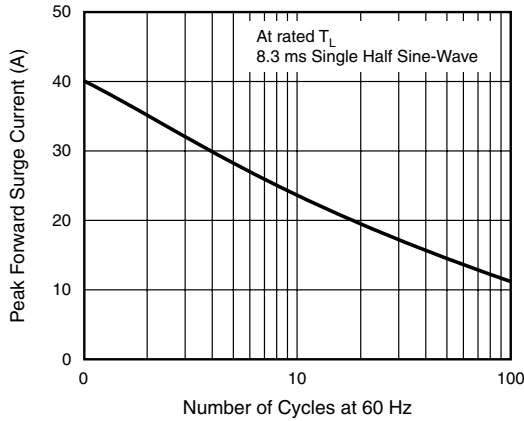


Figure 3. Maximum Non-Repetitive Peak Forward Surge Current

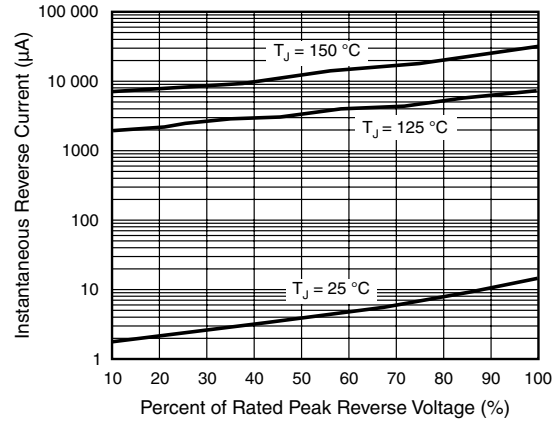


Figure 5. Typical Reverse Leakage Characteristics

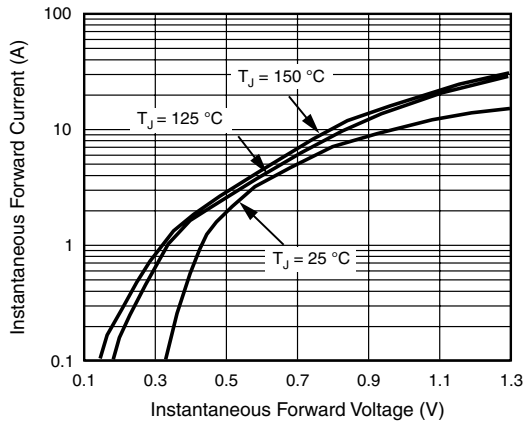


Figure 4. Typical Instantaneous Forward Characteristics

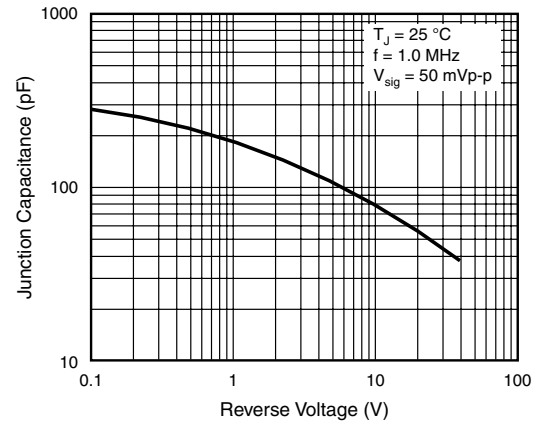
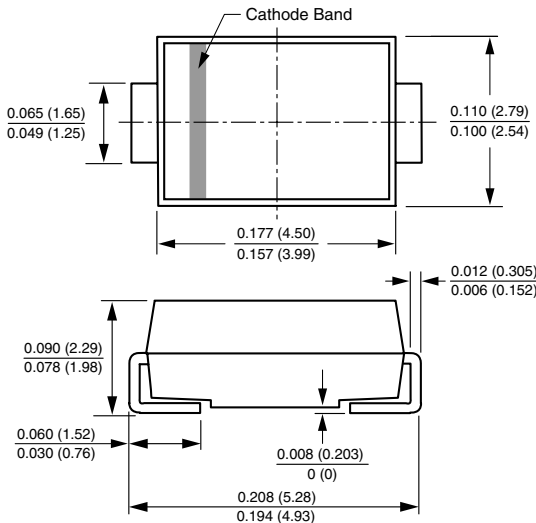


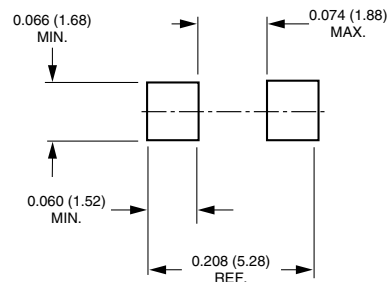
Figure 6. Typical Junction Capacitance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**DO-214AC (SMA)**



**Mounting Pad Layout**





## Disclaimer

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

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