

Surface Mount Schottky Barrier Rectifier



DO-214AC (SMA)

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

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 commercial grade, meets JESD 201 class 1A whisker test

Polarity: Color band denotes the cathode end

| 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 |

| 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 | 10000 | | | V/ μ s |
| Operating junction and storage temperature range | T_J, T_{STG} | - 55 to + 150 | | | °C |



| ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | |
|--|--|---|----------------|----------------|-----------|----------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | TYP | MAX. | UNIT |
| Instantaneous forward voltage ⁽¹⁾ | I _F = 1 A, I _F = 2 A, | T _J = 25 °C | V _F | 0.436 0.517 | - 0.55 | V |
| Reverse current ⁽¹⁾ | rated V _R | T _J = 25 °C T _J = 100 °C | I _R | 13 1.65 | 200 8 | μA mA |
| Typical junction capacitance | 4.0 V, 1 MHz | | C _J | 130 | - | pF |

Note:

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

| THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | |
|---|--------------------------------------|----------|-------|-------|------|--|
| PARAMETER | SYMBOL | SS22S | SS23S | SS24S | UNIT | |
| Typical thermal resistance ⁽¹⁾ | R _{θJA} R _{θJL} | 75 25 | | | °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 °C unless otherwise noted)

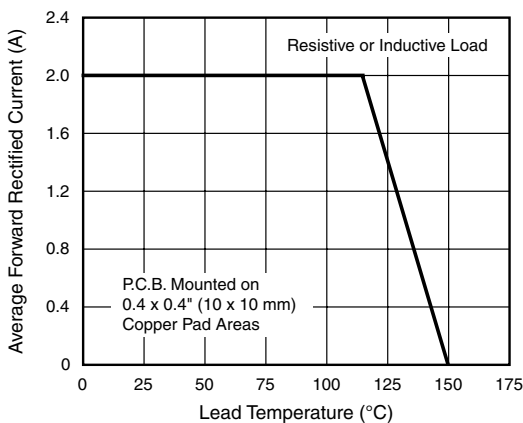


Figure 1. Forward Current Derating Curve

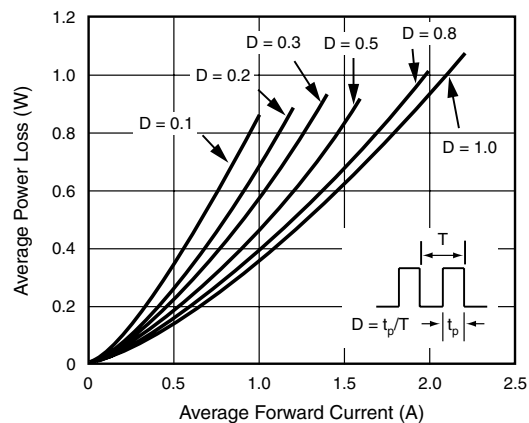


Figure 2. Forward Power Loss Characteristics

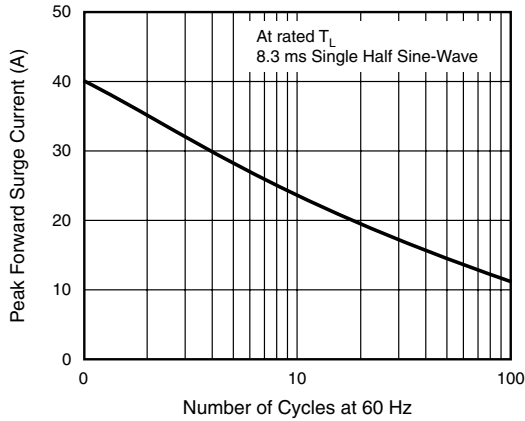


Figure 3. Maximum Non-Repetitive Peak Forward Surge Current

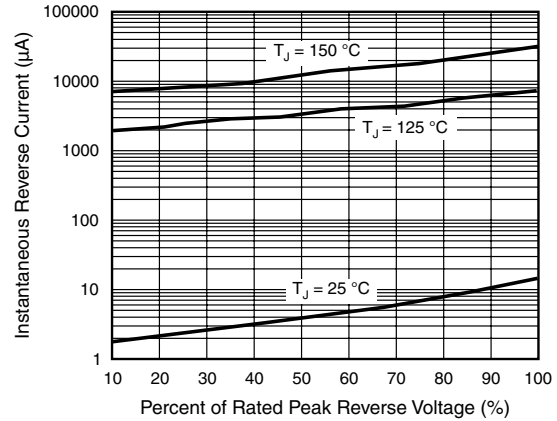


Figure 5. Typical Reverse Leakage Characteristics

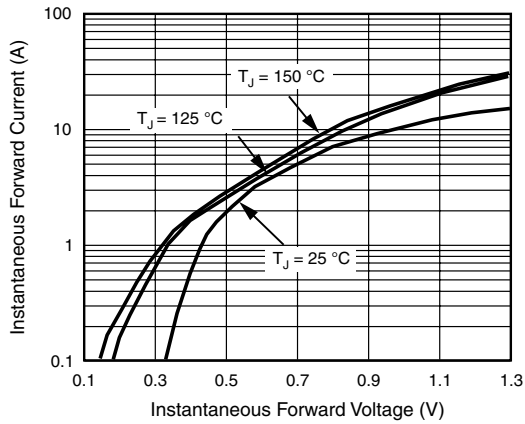


Figure 4. Typical Instantaneous Forward Characteristics

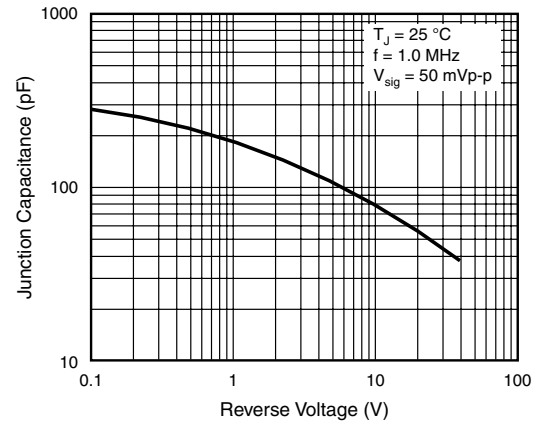
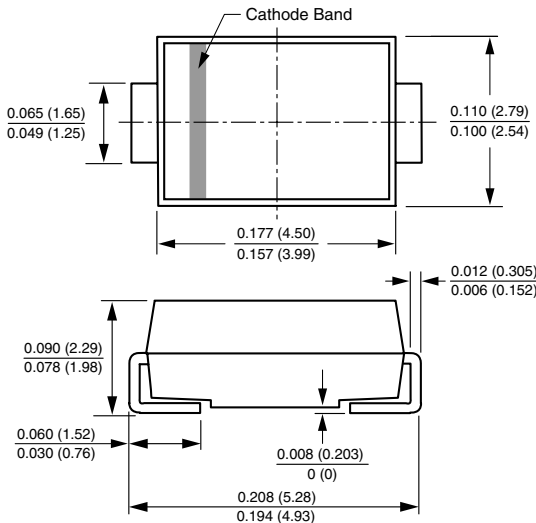


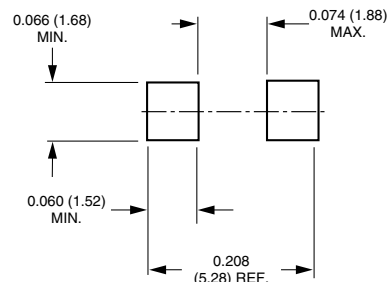
Figure 6. Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AC (SMA)



Mounting Pad Layout





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