



**THE DATASHEET OF
SS12-M3/61T**



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 ($T_A = 25$ °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_R) | dV/dt | 10 000 | | | | | V/ μ s |
| Operating junction temperature range | T_J | - 65 to + 125 | | | - 65 to + 150 | | °C |
| Storage temperature range | T_{STG} | - 65 to + 150 | | | | | °C |

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

Note:

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

| THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | | | | |
|---|-----------------|------|------|------|------|------|--------------------|--|
| PARAMETER | SYMBOL | SS12 | SS13 | SS14 | SS15 | SS16 | UNIT | |
| Typical thermal resistance ⁽¹⁾ | $R_{\theta JA}$ | 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

| ORDERING INFORMATION (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 ⁽¹⁾ | 0.064 | 61T | 1800 | 7" diameter plastic tape and reel |
| SS14HE3/5AT ⁽¹⁾ | 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)

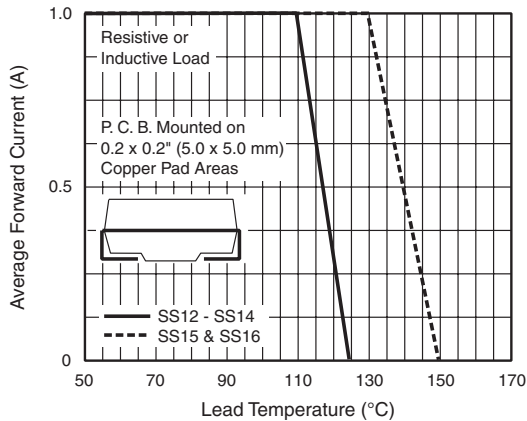


Figure 1. Forward Current Derating Curve

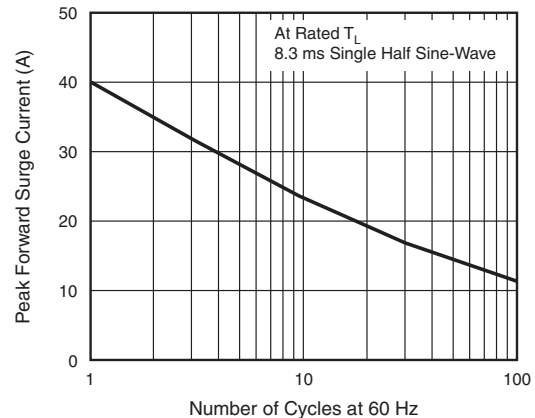


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

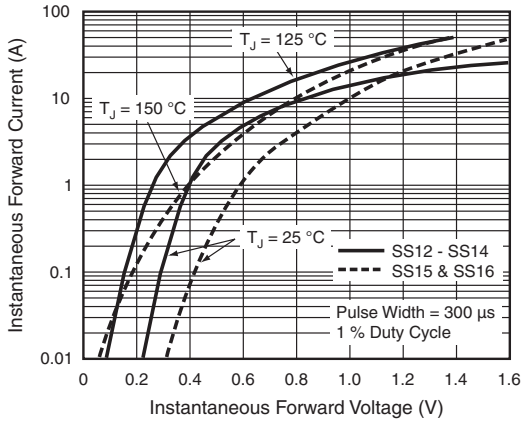


Figure 3. Typical Instantaneous Forward Characteristics

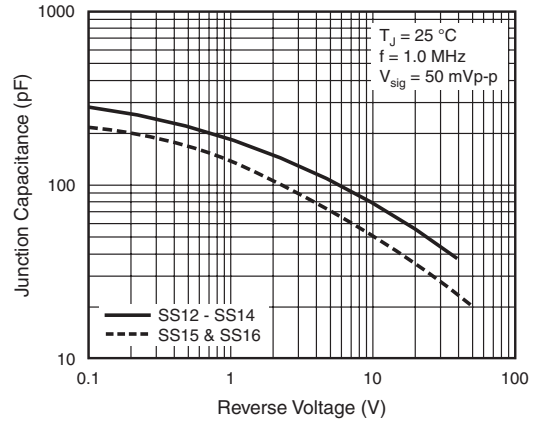


Figure 5. Typical Junction Capacitance

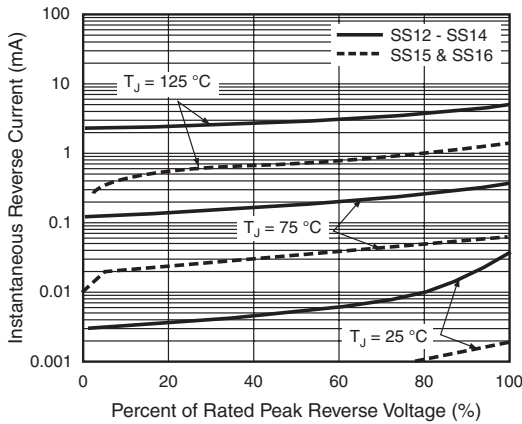
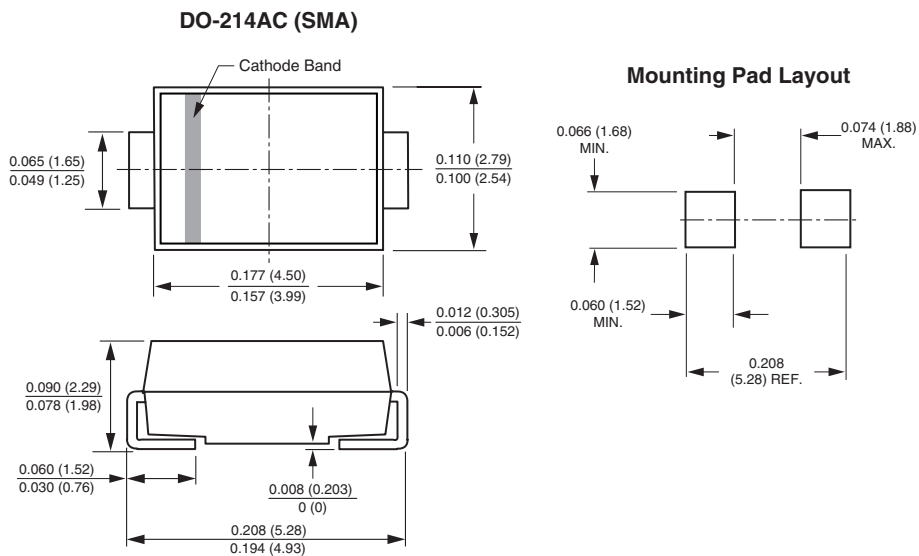


Figure 4. Typical Reverse Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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