

Surface Mount Schottky Barrier Rectifier


DO-214AB (SMC)

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-214AB (SMC)

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 | |
|-------------------------|----------------|
| $I_{F(AV)}$ | 3.0 A |
| V_{RRM} | 20 V to 60 V |
| I_{FSM} | 100 A |
| E_{AS} | 20 mJ |
| V_F | 0.5 V, 0.75 V |
| T_J max. | 125 °C, 150 °C |

| MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted) | | | | | | | | |
|--|-------------|---------------|------|------|---------------|------|------|------------|
| PARAMETER | SYMBOL | SS32 | SS33 | SS34 | SS35 | SS36 | UNIT | |
| Device marking code | | S2 | S3 | S4 | S5 | S6 | | |
| 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) | $I_{F(AV)}$ | 3.0 | | | | | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 100 | | | | | | A |
| Non-repetitive avalanche energy at $T_A = 25\text{ °C}$, $I_{AS} = 2.0\text{ A}$, $L = 10\text{ mH}$ | E_{AS} | 20 | | | | | | mJ |
| Voltage rate of change (rated V_R) | dv/dt | 10 000 | | | | | | V/ μ s |
| Operating junction temperature range | T_J | - 55 to + 125 | | | - 55 to + 150 | | | °C |
| Storage temperature range | T_{STG} | - 55 to + 150 | | | | | | °C |

| ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | | | | |
|--|-------------------------|--|----------------|------|------|------|------|------|------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | SS32 | SS33 | SS34 | SS35 | SS36 | UNIT |
| Maximum instantaneous forward voltage ⁽¹⁾ | 3.0 A | | V _F | 0.5 | | | 0.75 | | V |
| Maximum DC reverse current at rated DC blocking voltage ⁽¹⁾ | T _A = 25 °C | | I _R | 0.5 | | | | | mA |
| | T _A = 100 °C | | | 20 | | 10 | | | |

Note:

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

| THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | | | |
|---|--------------------------------------|----------|------|------|------|------|------|--|
| PARAMETER | SYMBOL | SS32 | SS33 | SS34 | SS35 | SS36 | UNIT | |
| Typical thermal resistance ⁽¹⁾ | R _{θJA} R _{θJL} | 55 17 | | | | | °C/W | |

Note:

(1) P.C.B. mounted 0.55 x 0.55" (14 x 14 mm) copper pad areas

| ORDERING INFORMATION (Example) | | | | |
|--------------------------------|-----------------|------------------------|---------------|------------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| SS34-E3/57T | 0.235 | 57T | 850 | 7" diameter plastic tape and reel |
| SS34-E3/9AT | 0.235 | 9AT | 3500 | 13" diameter plastic tape and reel |
| SS34HE3/57T ⁽¹⁾ | 0.235 | 57T | 850 | 7" diameter plastic tape and reel |
| SS34HE3/9AT ⁽¹⁾ | 0.235 | 9AT | 3500 | 13" diameter plastic tape and reel |

Note:

(1) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

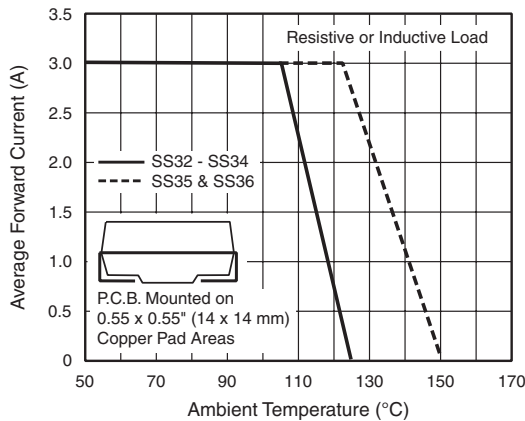


Figure 1. Forward Current Derating Curve

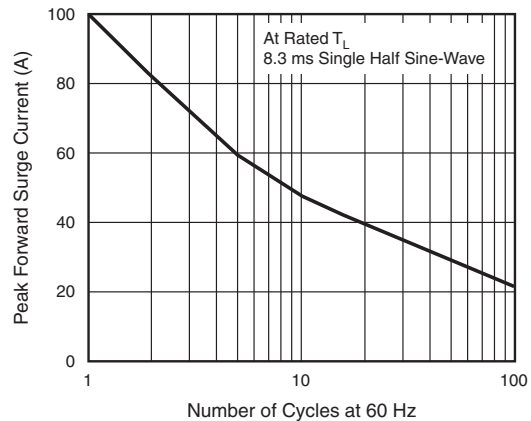


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

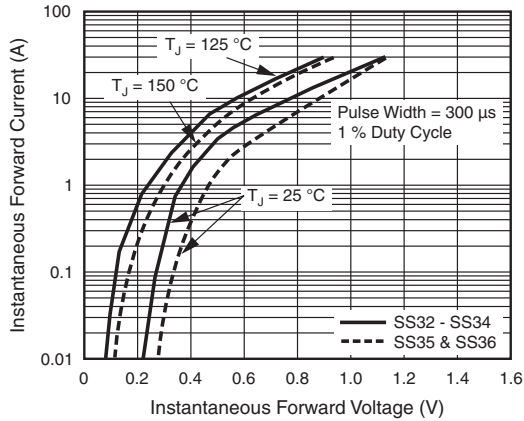


Figure 3. Typical Instantaneous Forward Characteristics

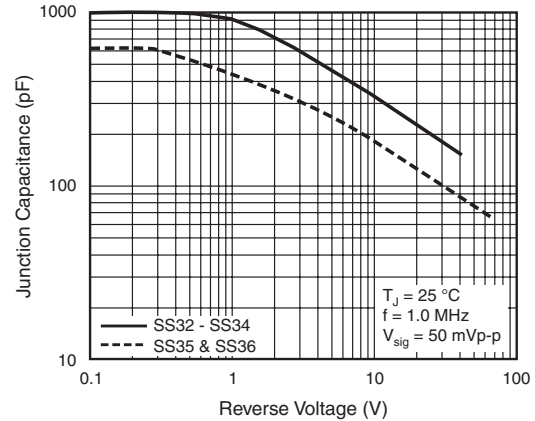


Figure 5. Typical Junction Capacitance

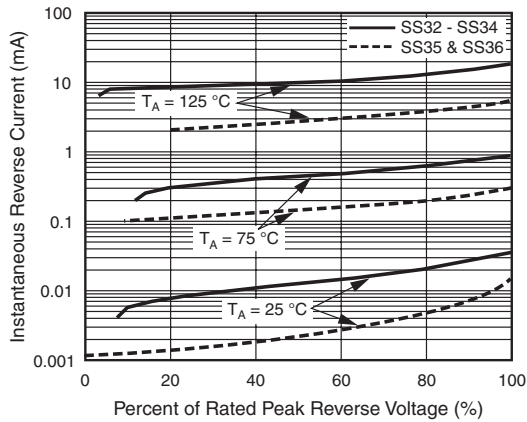


Figure 4. Typical Reverse Current Characteristics

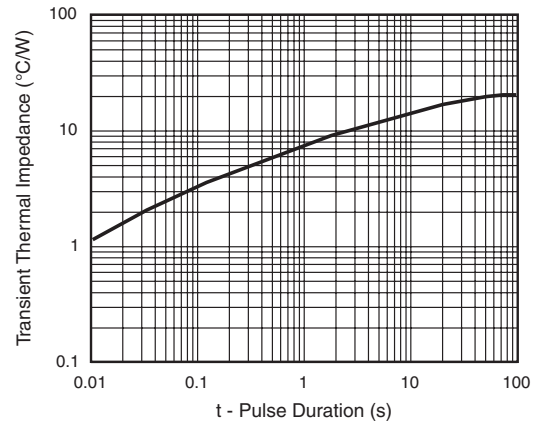
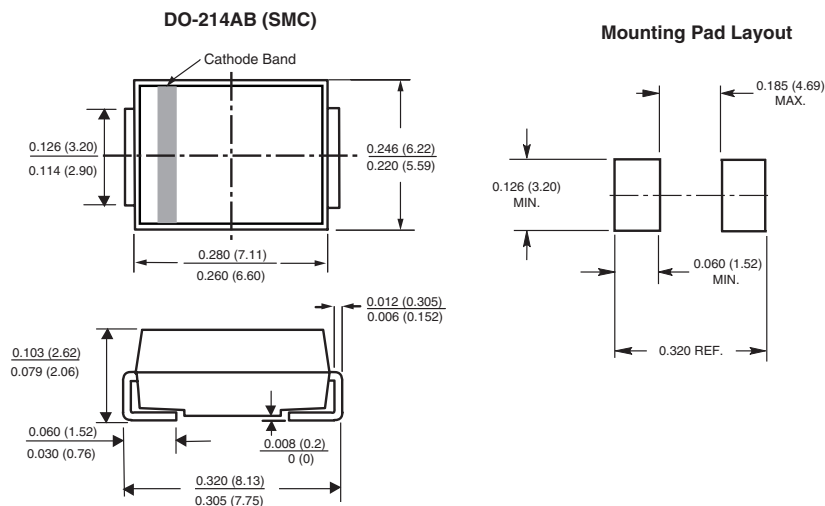


Figure 6. Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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