

Surface Mount Schottky Barrier Rectifier


DO-214AA (SMB)

PRIMARY CHARACTERISTICS

| | |
|-------------|----------------|
| $I_{F(AV)}$ | 2.0 A |
| V_{RRM} | 20 V to 60 V |
| I_{FSM} | 75 A |
| V_F | 0.50 V, 0.70 V |
| T_J max. | 125 °C, 150 °C |

TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

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
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

MECHANICAL DATA

Case: DO-214AA (SMB)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS-compliant, commercial grade

Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Polarity: Color band denotes cathode end

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)

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|---|--------------------|---------------|------|------|---------------|------|------|
| PARAMETER | SYMBOL | SS22 | SS23 | SS24 | SS25 | SS26 | 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 |
| Max. average forward rectified current at T _L (fig. 1) | I _{F(AV)} | 2.0 | | | | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I _{FSM} | 75 | | | | | A |
| Non-repetitive avalanche energy at T _A = 25 °C, I _{AS} = 2.0 A, L = 10 mH | E _{AS} | 20 | | | | | mJ |
| Electrostatic discharge capacitor voltage Human body model: C = 100 pF, R = 1.5 kΩ | V _C | 8.0 | | | | | kV |
| Voltage rate of change (rated V _R) | dV/dt | 10 000 | | | | | V/μs |
| 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 | SS22 | SS23 | SS24 | SS25 | SS26 | UNIT |
|--|-------------------------|----------------|------|------|------|------|------|------|
| Maximum instantaneous forward voltage ⁽¹⁾ | 2.0 A | V _F | 0.5 | | | 0.7 | | V |
| Maximum DC reverse current at rated DC blocking voltage ⁽¹⁾ | T _A = 25 °C | I _R | 0.4 | | | | | mA |
| | T _A = 100 °C | | 10 | | | | | |

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 | SS22 | SS23 | SS24 | SS25 | SS26 | UNIT |
|---|------------------|------|------|------|------|------|------|
| Typical thermal resistance ⁽¹⁾ | R _{θJA} | 75 | | | | | °C/W |
| | R _{θJL} | 17 | | | | | |

Note

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

ORDERING INFORMATION (Example)

| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|----------------------------|-----------------|------------------------|---------------|------------------------------------|
| SS24-E3/52T | 0.096 | 52T | 750 | 7" diameter plastic tape and reel |
| SS24-E3/5BT | 0.096 | 5BT | 3200 | 13" diameter plastic tape and reel |
| SS24HE3/52T ⁽¹⁾ | 0.096 | 52T | 750 | 7" diameter plastic tape and reel |
| SS24HE3/5BT ⁽¹⁾ | 0.096 | 5BT | 3200 | 13" diameter plastic tape and reel |

Note

⁽¹⁾ AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

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

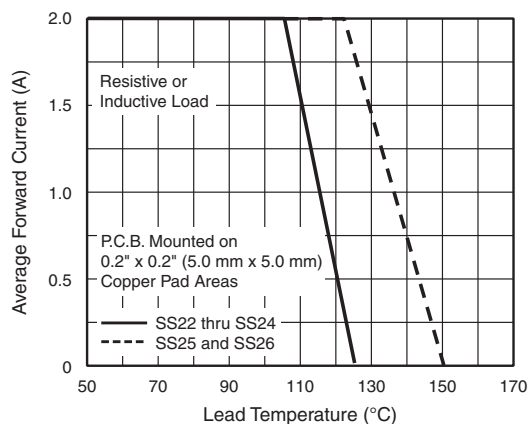


Fig. 1 - Forward Current Derating Curve

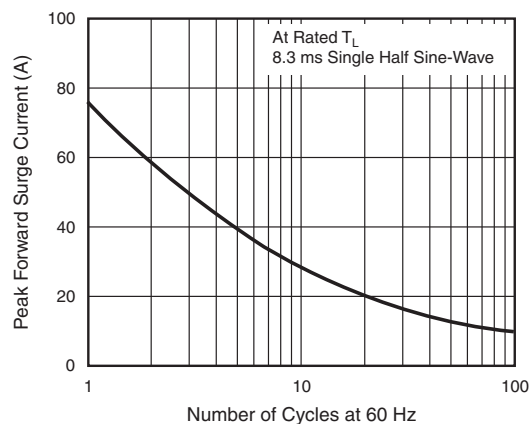


Fig. 2 - Maximum Non-Repetitive Surge Current

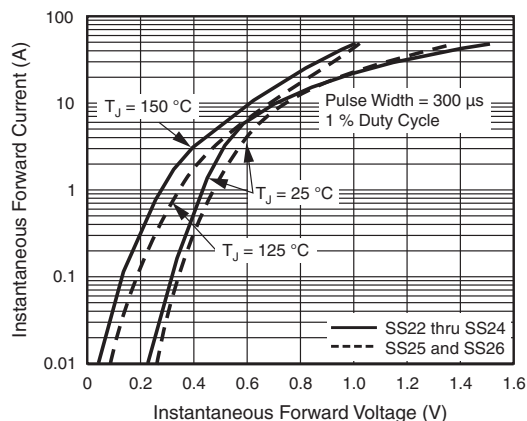


Fig. 3 - Typical Instantaneous Forward Characteristics

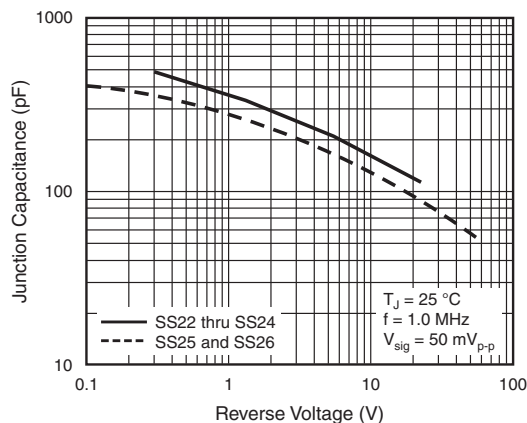


Fig. 5 - Typical Junction Capacitance

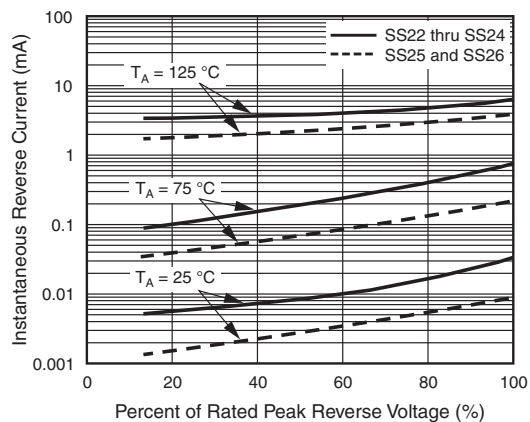
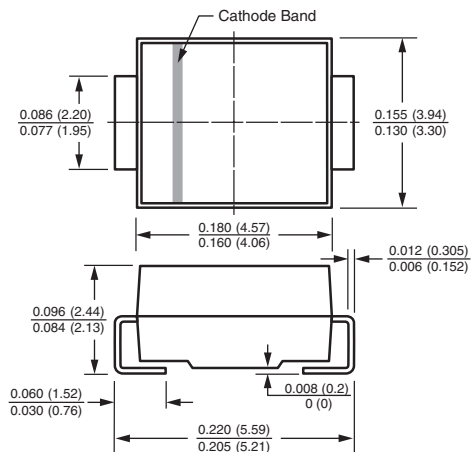


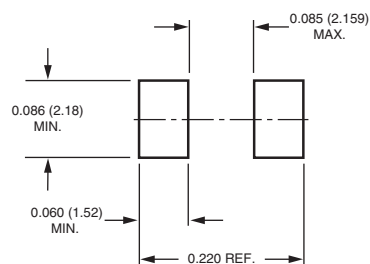
Fig. 4 - Typical Reverse Current Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AA (SMB)



Mounting Pad Layout





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