

High-Voltage Surface Mount Schottky Rectifier


DO-214AA (SMB)

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

TYPICAL APPLICATIONS

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

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 the cathode end

| PRIMARY CHARACTERISTICS | |
|-------------------------|-------------|
| $I_{F(AV)}$ | 1.5 A |
| V_{RRM} | 90 V, 100 V |
| I_{FSM} | 75 A |
| V_F | 0.71 V |
| T_J max. | 150 °C |

| MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted) | | | | |
|--|----------------|---------------|-------|------|
| PARAMETER | SYMBOL | SS29 | SS210 | UNIT |
| Device marking code | | S9 | S10 | |
| Maximum repetitive peak reverse voltage | V_{RRM} | 90 | 100 | V |
| Maximum RMS voltage | V_{RMS} | 63 | 70 | V |
| Maximum DC blocking voltage | V_{DC} | 90 | 100 | V |
| Maximum average forward rectified current (fig. 1) | $I_{F(AV)}$ | 1.5 | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 75 | | A |
| Peak repetitive reverse surge current at $t_p = 2$ µs, 1 kHz | I_{RRM} | 1.0 | | A |
| Voltage rate of change (rated V_R) | dV/dt | 10 000 | | V/µs |
| Operating junction and storage temperature range | T_J, T_{STG} | - 55 to + 150 | | °C |

| ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | | |
|---|-----------------------|---------------------------|--------|------|-------|---------------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | SS29 | SS210 | UNIT |
| Maximum instantaneous forward voltage ⁽¹⁾ | $I_F = 0.1 \text{ A}$ | $T_A = 25^\circ\text{C}$ | V_F | 0.43 | 0.75 | V |
| | $I_F = 1.0 \text{ A}$ | | | 0.75 | | |
| | $I_F = 3.0 \text{ A}$ | | | 0.95 | | |
| | $I_F = 1.5 \text{ A}$ | $T_A = 100^\circ\text{C}$ | | 0.71 | | |
| | $I_F = 3.0 \text{ A}$ | | | 0.85 | | |
| Maximum DC reverse current at rated V_R ⁽¹⁾ | | $T_A = 25^\circ\text{C}$ | I_R | 30 | 5 | μA |
| | | $T_A = 100^\circ\text{C}$ | | | | |

Note

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

| THERMAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | |
|--|-----------------|------|-------|--------------------|--|
| PARAMETER | SYMBOL | SS29 | SS210 | UNIT | |
| Maximum thermal resistance ⁽¹⁾ | $R_{\theta JA}$ | 85 | 25 | $^\circ\text{C/W}$ | |
| | $R_{\theta JL}$ | | | | |

Note

⁽¹⁾ P.C.B. mounted with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

| ORDERING INFORMATION (Example) | | | | |
|--------------------------------|-----------------|------------------------|---------------|------------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| SS210-E3/52T | 0.096 | 52T | 750 | 7" diameter plastic tape and reel |
| SS210-E3/5BT | 0.096 | 5BT | 3200 | 13" diameter plastic tape and reel |
| SS210HE3/52T ⁽¹⁾ | 0.096 | 52T | 750 | 7" diameter plastic tape and reel |
| SS210HE3/5BT ⁽¹⁾ | 0.096 | 5BT | 3200 | 13" diameter plastic tape and reel |

Note

⁽¹⁾ AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

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

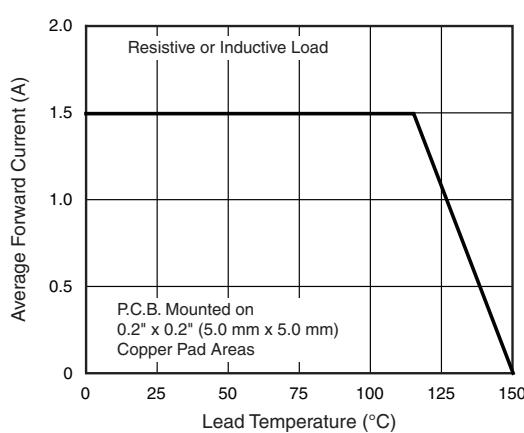


Fig. 1 - Forward Current Derating Curve

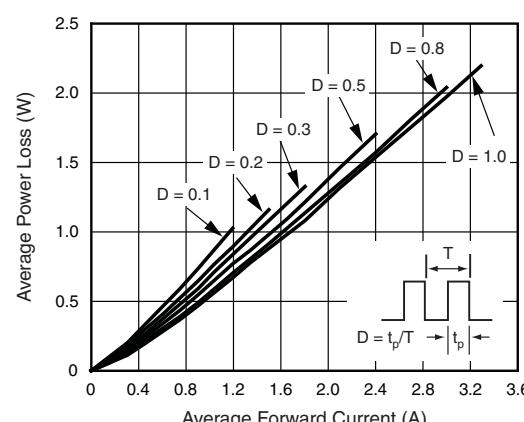


Fig. 2 - Forward Power Loss Characteristics

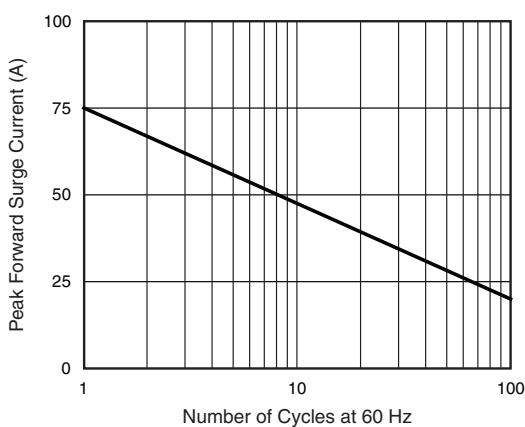


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

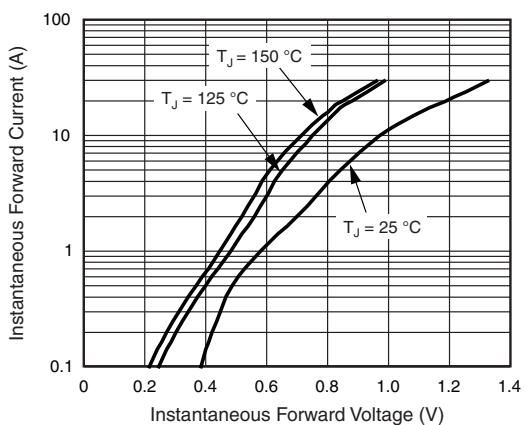


Fig. 4 - Typical Instantaneous Forward Characteristics

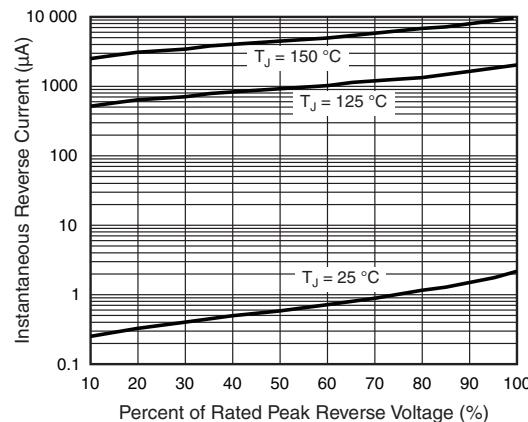


Fig. 5 - Typical Reverse Leakage Characteristics

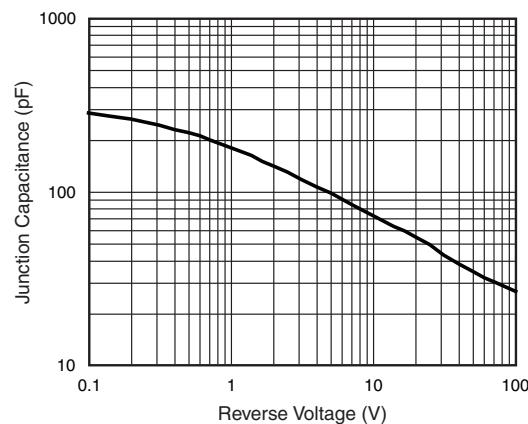
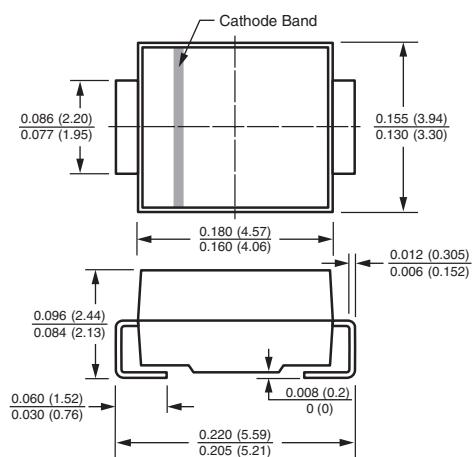


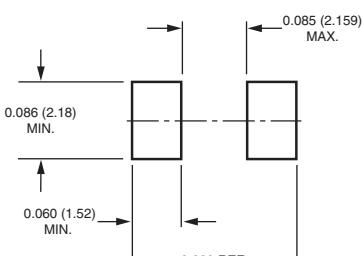
Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AA (SMB)



Mounting Pad Layout



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