

High Voltage Schottky Plastic Rectifier

High Barrier Technology for Improved High Temperature Performance



DO-201AD

FEATURES

- Guardring for overvoltage protection
- Low power losses and high efficiency
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- High frequency operation
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: DO-201AD

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade

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

E3 suffix meets JESD 201 class 1A whisker test

Polarity: Color band denotes the cathode end

| PRIMARY CHARACTERISTICS | |
|-------------------------|-------------|
| $I_{F(AV)}$ | 5.0 A |
| V_{RRM} | 90 V, 100 V |
| I_{FSM} | 200 A |
| V_F | 0.70 V |
| I_R | 200 μ A |
| T_J max. | 175 °C |
| Package | DO-201AD |
| Diode variations | Single |

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

| PARAMETER | SYMBOL | SB5H90 | SB5H100 | UNIT |
|---|-------------|---------------|---------|------|
| Maximum repetitive peak reverse voltage | V_{RRM} | 90 | 100 | V |
| Working peak reverse voltage | V_{RWM} | 90 | 100 | V |
| Maximum DC blocking voltage | V_{DC} | 90 | 100 | V |
| Maximum average forward rectified current at $T_C = 80$ °C | $I_{F(AV)}$ | 5.0 | | A |
| Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 200 | | A |
| Peak repetitive reverse surge current at $t_p = 2.0$ μ s, 1 kHz | I_{RRM} | 1.0 | | A |
| Storage temperature range | T_{STG} | - 55 to + 175 | | °C |
| Maximum operating junction temperature | T_J | 175 | | °C |



| ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | |
|--|----------------------|-----------------------------------|--------|---------|---------------|
| PARAMETER | TEST CONDITIONS | SYMBOL | SB5H90 | SB5H100 | UNIT |
| Maximum instantaneous forward voltage | $I_F = 5.0\text{ A}$ | $T_A = 25\text{ }^\circ\text{C}$ | 0.80 | | V |
| | | $T_A = 125\text{ }^\circ\text{C}$ | 0.70 | | |
| Maximum reverse current at rated V_R | | $T_A = 25\text{ }^\circ\text{C}$ | 200 | | μA |
| | | $T_A = 125\text{ }^\circ\text{C}$ | 10 | | mA |

Notes

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width $\leq 40\text{ ms}$

| THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | |
|---|-----------------------|--------|---------|--------------------|
| PARAMETER | SYMBOL | SB5H90 | SB5H100 | UNIT |
| Maximum thermal resistance | $R_{\theta JA}^{(1)}$ | 25 | | $^\circ\text{C/W}$ |
| | $R_{\theta JL}^{(1)}$ | 8 | | |

Note

- (1) PCB 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) | PPREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| SB5H100-E3/54 | 1.1 | 54 | 1400 | 13" diameter paper tape and reel |
| SB5H100-E3/73 | 1.1 | 73 | 1000 | Ammo pack packaging |

RATINGS AND CHARACTERISTICS CURVES

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

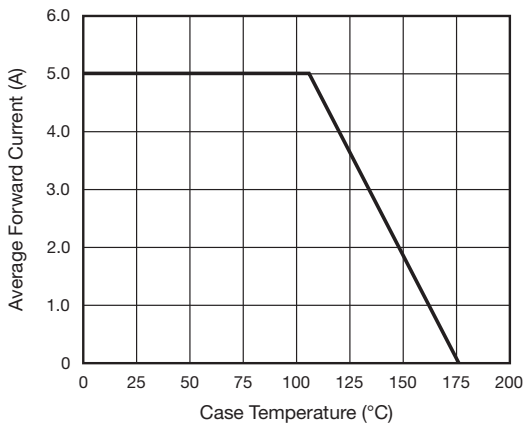


Fig. 1 - Forward Current Derating Curve

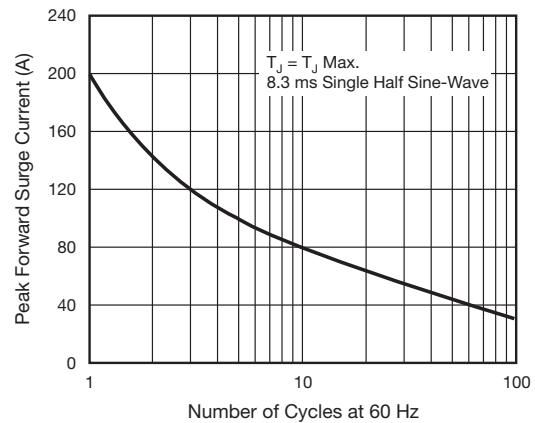


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

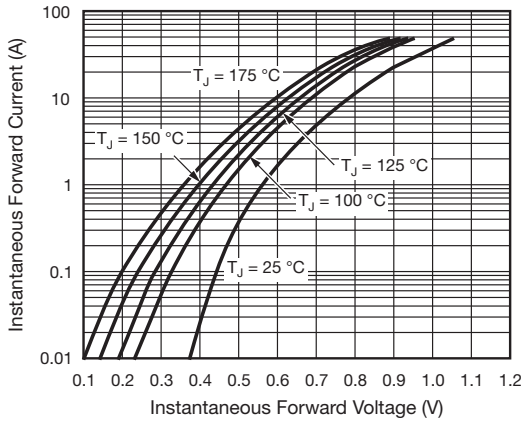


Fig. 3 - Typical Instantaneous Forward Characteristics

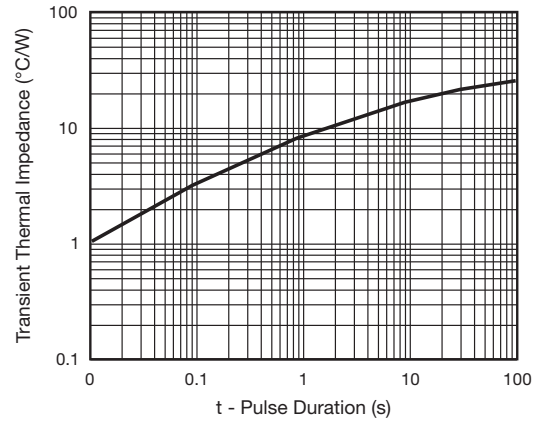


Fig. 5 - Typical Transient Thermal Impedance

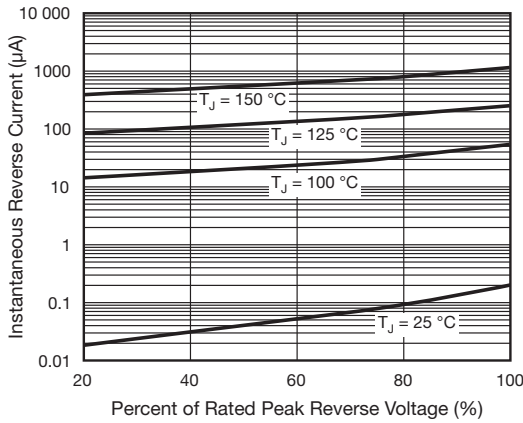


Fig. 4 - Typical Reverse Characteristics

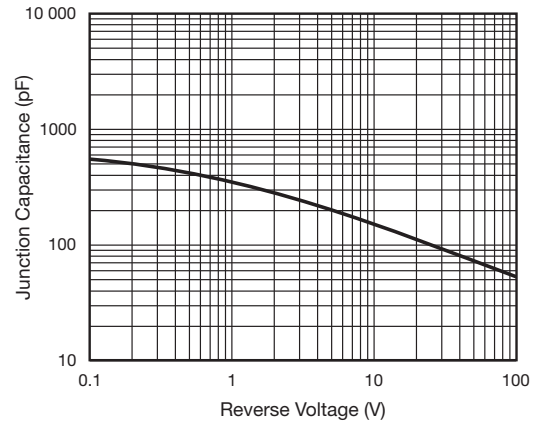
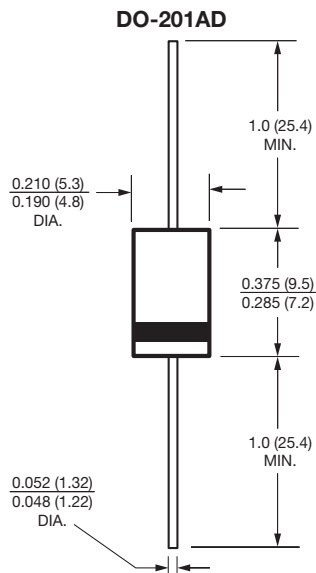


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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