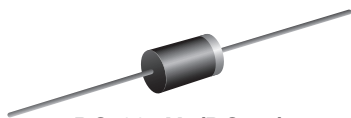




High-Voltage Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



DO-204AL (DO-41)

FEATURES

- High barrier technology for improved high T_J
- Guardring for overvoltage protection
- Low power losses and high efficiency
- Low forward voltage drop
- Very low leakage current
- High forward surge capability
- High frequency operation
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC



RoHS
COMPLIANT

PRIMARY CHARACTERISTICS

| | |
|-------------|-------------|
| $I_{F(AV)}$ | 1.0 A |
| V_{RRM} | 90 V, 100 V |
| I_{FSM} | 50 A |
| V_F | 0.62 V |
| I_R | 1.0 μ A |
| T_J max. | 175 °C |

TYPICAL APPLICATIONS

For use in middle voltage high frequency inverters, freewheeling, dc-to-dc converters and polarity protection applications.

MECHANICAL DATA

Case: DO-204AL (DO-41)

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

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

| PARAMETER | SYMBOL | SB1H90 | SB1H100 | UNIT |
|--|-------------|---------------|---------|------------|
| 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 | $I_{F(AV)}$ | 1.0 | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 50 | | A |
| Voltage rate of change (rated V_R) | dV/dt | 10 000 | | V/ μ s |
| Peak repetitive reverse surge current at $t_p = 2.0$ μ s, 1 kHz | I_{RRM} | 1.0 | | A |
| Maximum operating junction temperature | T_J | 175 | | °C |
| Storage temperature range | T_{STG} | - 55 to + 175 | | °C |

SB1H90, SB1H100

Vishay General Semiconductor



| ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | |
|--|------------------------|-------------------------|-------------------------------|--------|---------|------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | SB1H90 | SB1H100 | UNIT |
| Maximum instantaneous forward voltage | I _F = 1.0 A | T _J = 25 °C | V _F ⁽¹⁾ | 0.77 | V | |
| | | T _J = 125 °C | | 0.62 | | |
| | I _F = 2.0 A | T _J = 25 °C | | 0.86 | | |
| | | T _J = 125 °C | | 0.70 | | |
| Maximum reverse current at rated V _R | | T _J = 25 °C | I _R ⁽²⁾ | 1.0 | μA | |
| | | T _J = 125 °C | | 0.5 | mA | |

Notes

- (1) Pulse test: 300 ms pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 40 ms

| THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | |
|---|---------------------------------|--------|---------|------|
| PARAMETER | SYMBOL | SB1H90 | SB1H100 | UNIT |
| Maximum thermal resistance | R _{θJA} ⁽¹⁾ | 57 | | °C/W |
| | R _{θJL} ⁽¹⁾ | 15 | | |

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 |
| SB1H100-E3/54 | 0.34 | 54 | 5500 | 13" diameter paper tape and reel |
| SB1H100-E3/73 | 0.34 | 73 | 3000 | Ammo pack packaging |
| SB1H100HE3/54 ⁽¹⁾ | 0.34 | 54 | 5500 | 13" diameter paper tape and reel |
| SB1H100HE3/73 ⁽¹⁾ | 0.34 | 73 | 3000 | Ammo pack packaging |

Note

- (1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

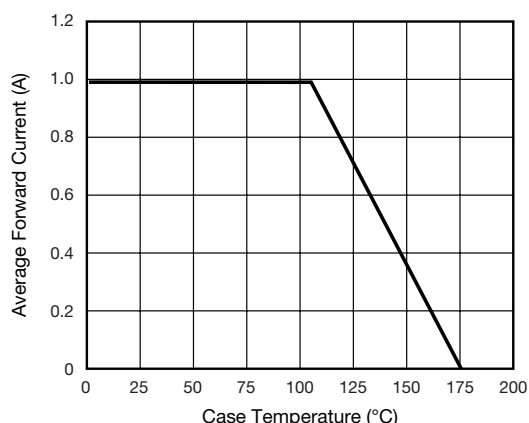


Fig. 1 - Forward Current Derating Curve

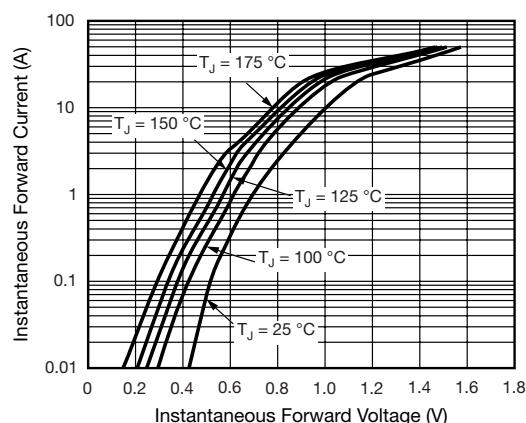


Fig. 2 - Typical Instantaneous Forward Characteristics

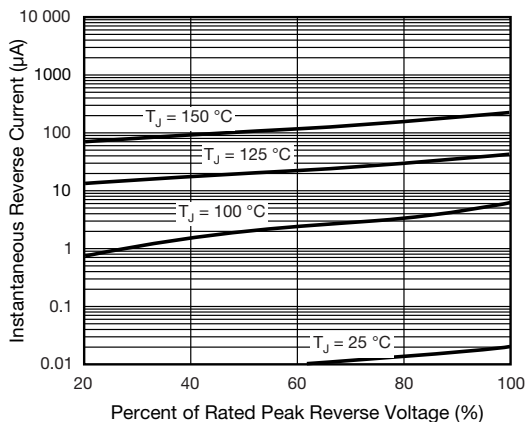


Fig. 3 - Typical Reverse Characteristics

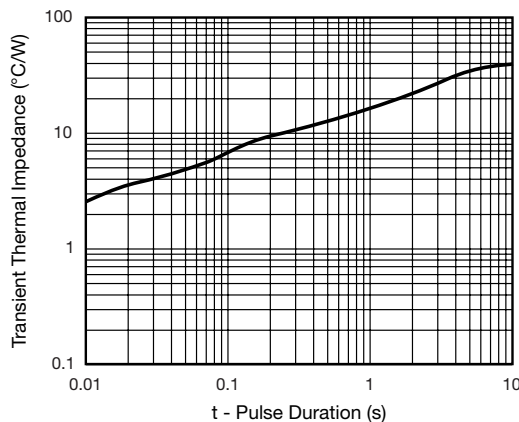


Fig. 5 - Typical Transient Thermal Impedance

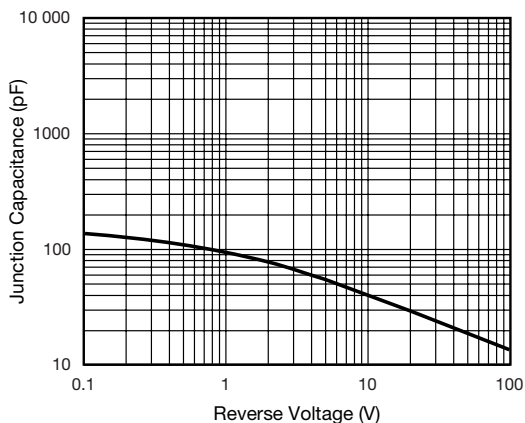
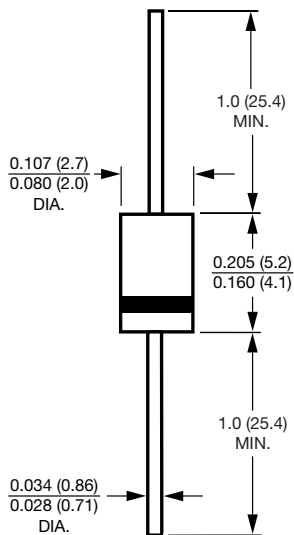


Fig. 4 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)





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