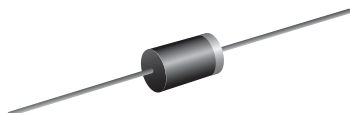


# High Voltage Schottky Plastic Rectifier

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
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**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 $\mu$ A |
| $T_J$ max.       | 175 °C      |
| Package          | DO-204AL    |
| Diode variations | Single      |

## TYPICAL APPLICATIONS

For use in middle voltage high frequency inverters, freewheeling, DC/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

**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

## 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/ $\mu$ s |
| Peak repetitive reverse surge current at $t_p = 2.0$ $\mu$ 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         |

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

| PARAMETER                                       | TEST CONDITIONS        |                         | SYMBOL                        | SB1H90 | SB1H100 | UNIT |
|-------------------------------------------------|------------------------|-------------------------|-------------------------------|--------|---------|------|
| Maximum instantaneous forward voltage           | I <sub>F</sub> = 1.0 A | T <sub>J</sub> = 25 °C  | V <sub>F</sub> <sup>(1)</sup> | 0.77   |         | V    |
|                                                 |                        | T <sub>J</sub> = 125 °C |                               | 0.62   |         |      |
|                                                 | I <sub>F</sub> = 2.0 A | T <sub>J</sub> = 25 °C  |                               | 0.86   |         |      |
|                                                 |                        | T <sub>J</sub> = 125 °C |                               | 0.70   |         |      |
| Maximum reverse current at rated V <sub>R</sub> |                        | T <sub>J</sub> = 25 °C  | I <sub>R</sub> <sup>(2)</sup> | 1.0    |         | μA   |
|                                                 |                        | T <sub>J</sub> = 125 °C |                               | 0.5    |         | mA   |

**Notes**

(1) Pulse test: 300 ms 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                | SB1H90 | SB1H100 | UNIT |
|----------------------------|-----------------------|--------|---------|------|
| Maximum thermal resistance | $R_{\theta JA}^{(1)}$ | 57     |         | °C/W |
|                            | $R_{\theta JL}^{(1)}$ | 15     |         |      |

**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) | 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              |

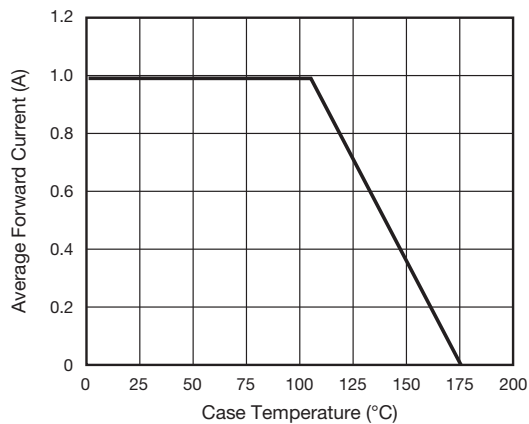
**RATINGS AND CHARACTERISTICS CURVES**( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

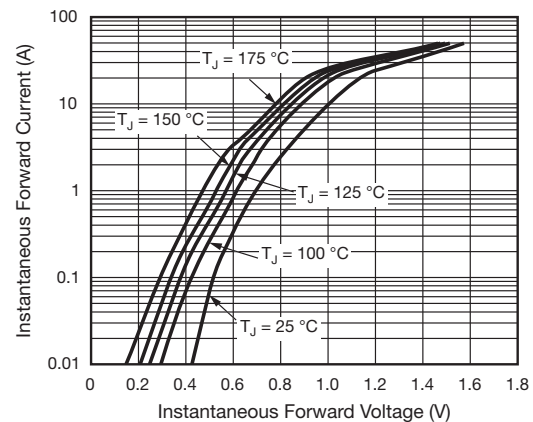


Fig. 2 - Typical Instantaneous Forward Characteristics

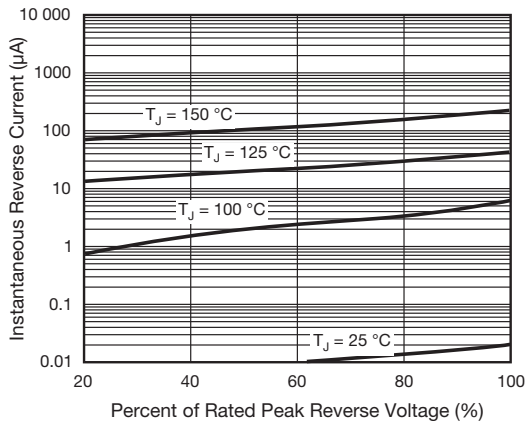


Fig. 3 - Typical Reverse Characteristics

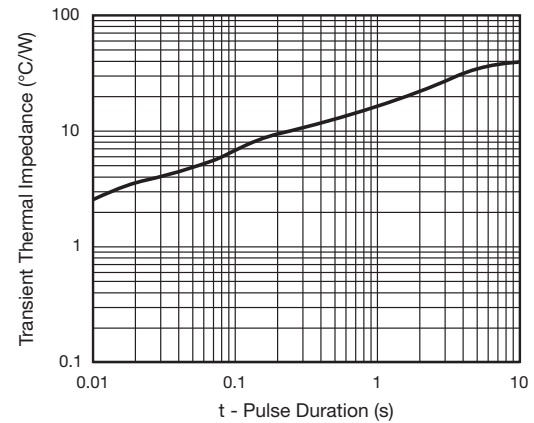


Fig. 5 - Typical Transient Thermal Impedance

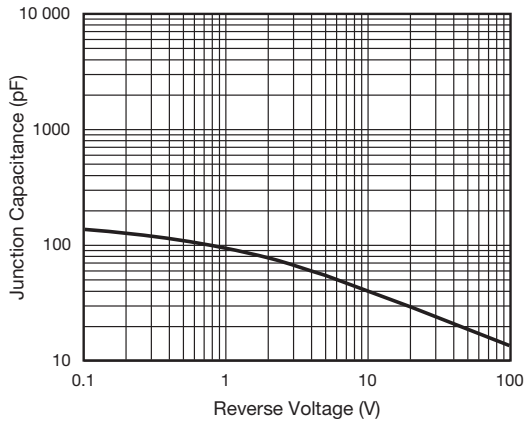
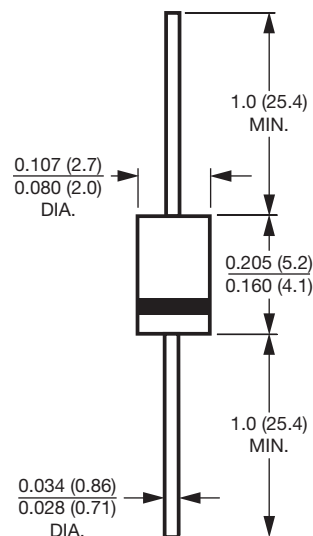


Fig. 4 - Typical Junction Capacitance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-204AL (DO-41)





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