

## Schottky Barrier Rectifier


**DO-201AD**

### FEATURES

- Guardring for overvoltage protection
- Extremely fast switching
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, dc-to-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          |
| $V_{RRM}$   | 20 V to 60 V   |
| $I_{FSM}$   | 220 A          |
| $V_F$       | 0.48 V, 0.65 V |
| $T_J$ max.  | 150 °C         |

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

| PARAMETER                                                                           | SYMBOL      | SB520         | SB530 | SB540 | SB550 | SB560 | UNIT |
|-------------------------------------------------------------------------------------|-------------|---------------|-------|-------|-------|-------|------|
| 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    |
| Maximum average forward rectified current at 0.375" (9.5 mm) lead length (fig. 1)   | $I_{F(AV)}$ | 5.0           |       |       |       |       | A    |
| Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$   | 220           |       |       |       |       | A    |
| Operating junction temperature range                                                | $T_J$       | - 65 to + 150 |       |       |       |       | °C   |
| Storage temperature range                                                           | $T_{STG}$   | - 65 to + 150 |       |       |       |       | °C   |

### ELECTRICAL CHARACTERISTICS ( $T_A = 25$ °C unless otherwise noted)

| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                 |                         |                               |       |       |       |       |       |      |
|----------------------------------------------------------------------------|-----------------|-------------------------|-------------------------------|-------|-------|-------|-------|-------|------|
| PARAMETER                                                                  | TEST CONDITIONS |                         | SYMBOL                        | SB520 | SB530 | SB540 | SB550 | SB560 | UNIT |
| Maximum instantaneous forward voltage                                      | 5.0 A           |                         | V <sub>F</sub> <sup>(1)</sup> | 0.48  |       |       | 0.65  |       | V    |
| Maximum instantaneous reverse current at rated DC blocking voltage         |                 | T <sub>A</sub> = 25 °C  | I <sub>R</sub> <sup>(1)</sup> | 0.5   |       |       |       |       | mA   |
|                                                                            |                 | T <sub>A</sub> = 100 °C |                               | 50    |       |       | 25    |       |      |

#### Note

(1) Pulse test: 300  $\mu$ s pulse width, 1 % duty cycle

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

| PARAMETER                  | SYMBOL                          | SB520 | SB530 | SB540 | SB550 | SB560 | UNIT |
|----------------------------|---------------------------------|-------|-------|-------|-------|-------|------|
| Typical thermal resistance | R <sub>θJA</sub> <sup>(1)</sup> | 25    |       |       |       |       | °C/W |
|                            | R <sub>θJL</sub> <sup>(1)</sup> | 8     |       |       |       |       |      |

**Note**

<sup>(1)</sup> Thermal resistance from junction to lead vertical P.C.B. mounting, 0.375" (9.5 mm) lead length

**ORDERING INFORMATION** (Example)

| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
|---------------|-----------------|------------------------|---------------|----------------------------------|
| SB540-E3/54   | 1.09            | 54                     | 1400          | 13" diameter paper tape and reel |
| SB540-E3/73   | 1.09            | 73                     | 1000          | Ammo pack packaging              |

**RATINGS AND CHARACTERISTICS CURVES**

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

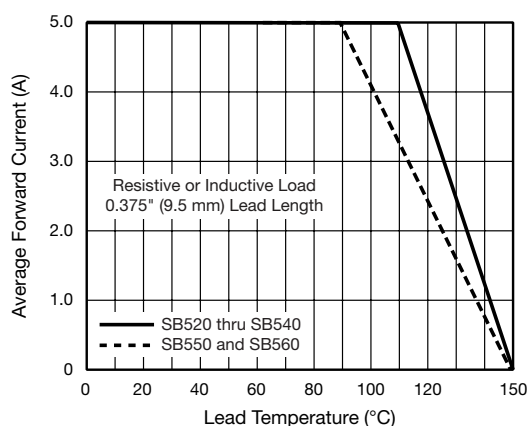


Fig. 1 - Forward Current Derating Curve

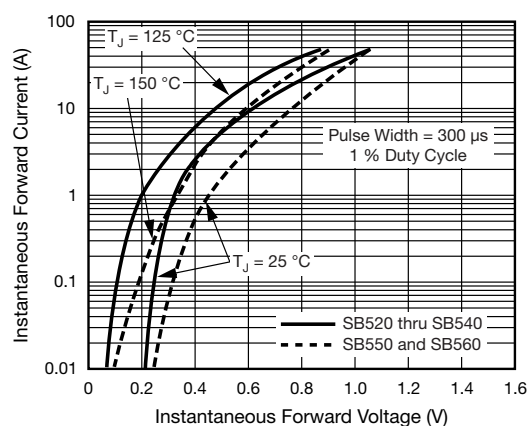


Fig. 3 - Typical Instantaneous Forward Characteristics



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



Fig. 4 - Typical Reverse Characteristics

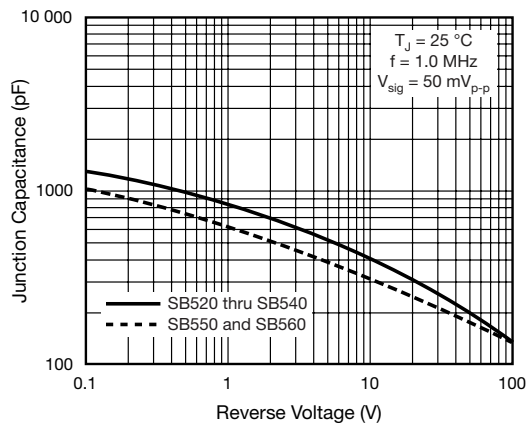


Fig. 5 - Typical Junction Capacitance

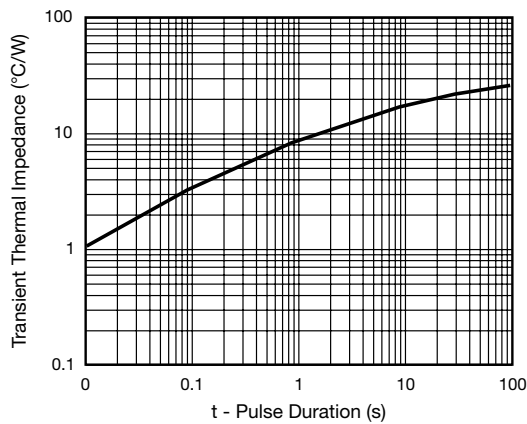
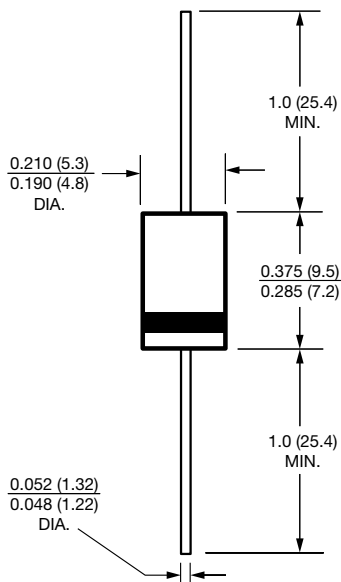


Fig. 6 - Typical Transient Thermal Impedance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### DO-201AD





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