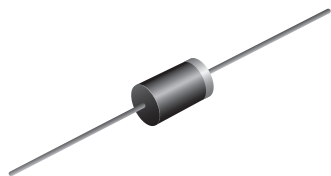


## Schottky Barrier Plastic Rectifier



DO-201AD

### FEATURES

- Guardring for overvoltage protection
- Very small conduction losses
- Extremely fast switching
- Low forward voltage drop
- 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

### TYPICAL APPLICATIONS

For use in low 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                        |
| $V_{RRM}$               | 20 V, 30 V, 40 V, 50 V, 60 V |
| $I_{FSM}$               | 150 A                        |
| $V_F$                   | 0.50 V, 0.70 V               |
| $T_J$ max.              | 150 °C                       |
| Package                 | DO-201AD                     |
| Diode variations        | Single                       |

| MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)                      |             |               |        |        |        |        |      |
|-------------------------------------------------------------------------------------|-------------|---------------|--------|--------|--------|--------|------|
| PARAMETER                                                                           | SYMBOL      | SB520A        | SB530A | SB540A | SB550A | SB560A | 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 | $I_{FSM}$   | 150           |        |        |        |        | A    |
| Operating junction temperature range                                                | $T_J$       | - 65 to + 150 |        |        |        |        | °C   |
| Storage temperature range                                                           | $T_{STG}$   | - 65 to + 150 |        |        |        |        | °C   |

| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                 |                         |                               |        |        |        |        |        |      |
|----------------------------------------------------------------------------|-----------------|-------------------------|-------------------------------|--------|--------|--------|--------|--------|------|
| PARAMETER                                                                  | TEST CONDITIONS |                         | SYMBOL                        | SB520A | SB530A | SB540A | SB550A | SB560A | UNIT |
| Maximum instantaneous forward voltage                                      | 5.0 A           |                         | V <sub>F</sub> <sup>(1)</sup> | 0.50   |        |        | 0.70   |        | V    |
| Maximum reverse current at rated V <sub>R</sub>                            |                 | T <sub>A</sub> = 25 °C  | I <sub>R</sub> <sup>(2)</sup> | 0.5    |        |        |        |        | mA   |
|                                                                            |                 | T <sub>A</sub> = 100 °C |                               | 50     |        | 25     |        |        |      |

#### Notes

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

(2) Pulse test: Pulse width  $\leq$  40 ms



| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                 |        |        |        |        |        |      |
|-------------------------------------------------------------------------|---------------------------------|--------|--------|--------|--------|--------|------|
| PARAMETER                                                               | SYMBOL                          | SB520A | SB530A | SB540A | SB550A | SB560A | UNIT |
| Typical thermal resistance                                              | R <sub>θJA</sub> <sup>(1)</sup> | 25     |        |        |        |        | °C/W |
|                                                                         | R <sub>θJC</sub> <sup>(1)</sup> | 10     |        |        |        |        |      |
|                                                                         | R <sub>θJL</sub> <sup>(1)</sup> | 8      |        |        |        |        |      |

## Note

(1) Thermal resistance from junction to lead PCB mounting 0.375" (9.5 mm) lead length

| ORDERING INFORMATION (Example) |                 |                        |               |                                  |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
| SB540A-E3/54                   | 1.08            | 54                     | 1400          | 13" diameter paper tape and reel |
| SB540A-E3/73                   | 1.08            | 73                     | 1000          | Ammo pack packaging              |

## RATINGS AND CHARACTERISTICS CURVES

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

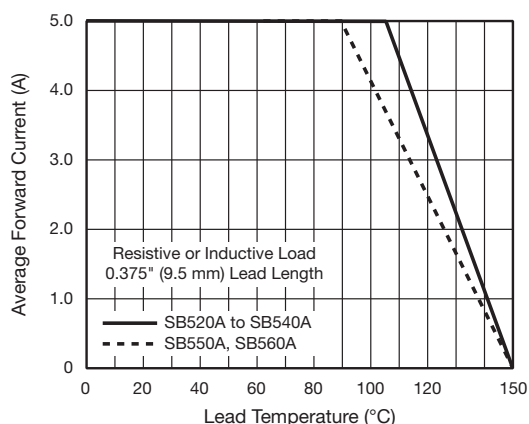


Fig. 1 - Forward Current Derating Curve

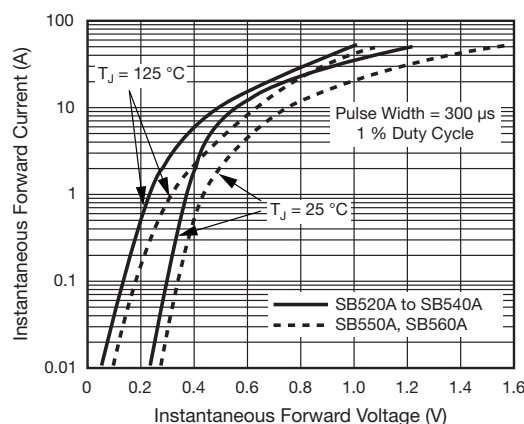


Fig. 3 - Typical Instantaneous Forward Characteristics

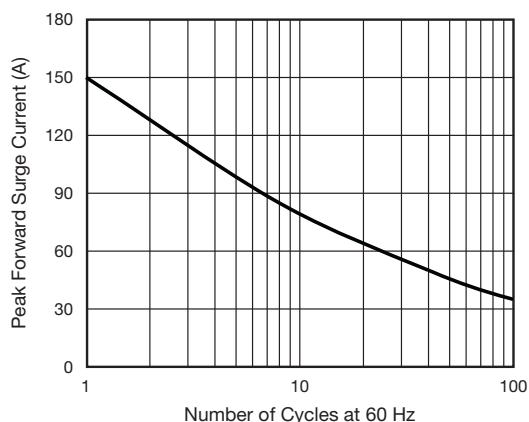


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

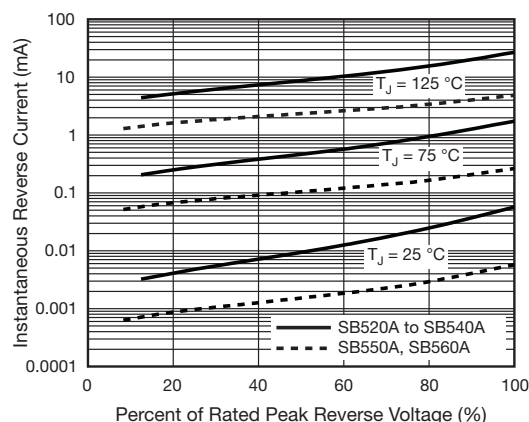


Fig. 4 - Typical Reverse Characteristics

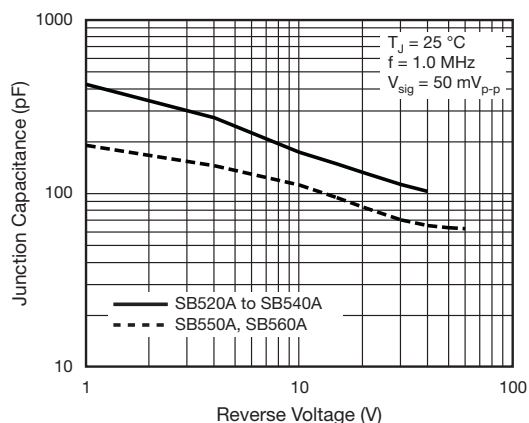


Fig. 5 - Typical Junction Capacitance

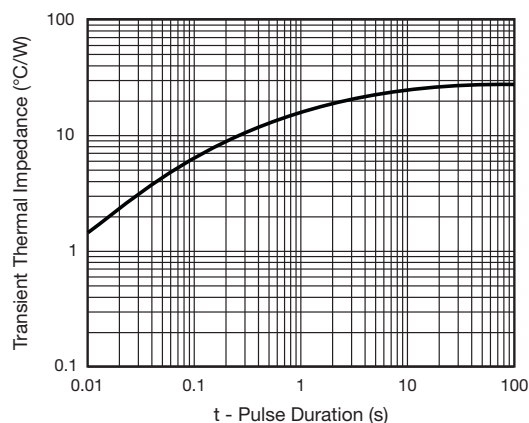
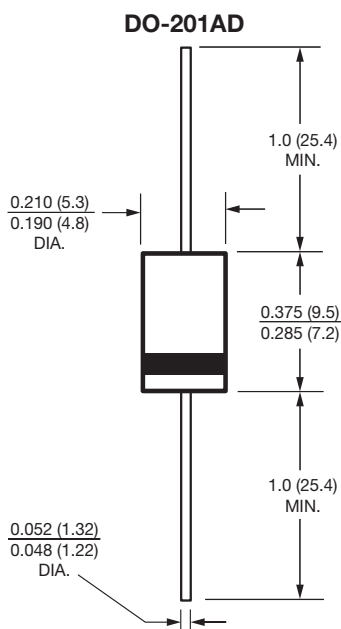


Fig. 6 - Typical Transient Thermal Impedance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)




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