

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


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 ($T_A = 25$ °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 ($T_A = 25$ °C unless otherwise noted) | | | | | | | | |
|--|-----------------|----------------------|--------|--------|--------|--------|--------|------|
| PARAMETER | TEST CONDITIONS | SYMBOL | SB520A | SB530A | SB540A | SB550A | SB560A | UNIT |
| Maximum instantaneous forward voltage | 5.0 A | V_F ⁽¹⁾ | 0.50 | | | 0.70 | | V |
| Maximum reverse current at rated V_R | $T_A = 25$ °C | I_R ⁽²⁾ | 0.5 | | | 25 | | mA |
| | $T_A = 100$ °C | | 50 | | 25 | | | |

Notes
⁽¹⁾ Pulse test: 300 µs pulse width, 1 % duty cycle

⁽²⁾ Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

| PARAMETER | SYMBOL | SB520A | SB530A | SB540A | SB550A | SB560A | UNIT |
|----------------------------|---------------------------------|--------|--------|--------|--------|--------|------|
| Typical thermal resistance | R _{θJA} ⁽¹⁾ | | | 25 | | | °C/W |
| | R _{θJC} ⁽¹⁾ | | | 10 | | | |
| | R _{θJL} ⁽¹⁾ | | | 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 °C unless otherwise noted)

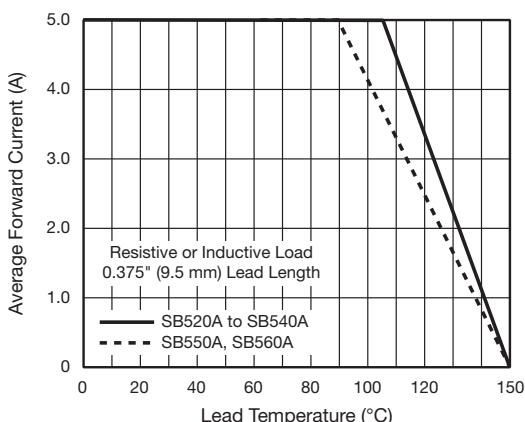


Fig. 1 - Forward Current Derating Curve

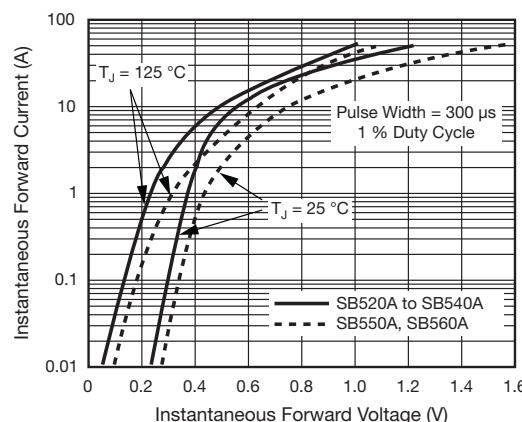


Fig. 3 - Typical Instantaneous Forward Characteristics

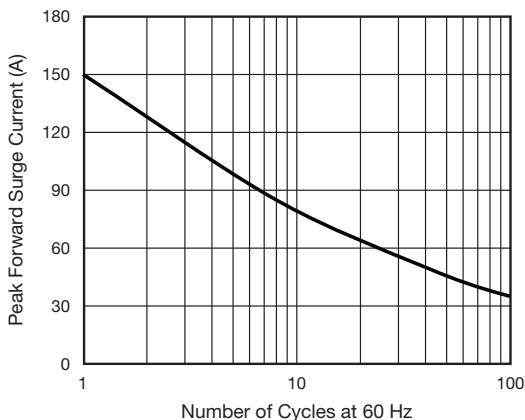


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

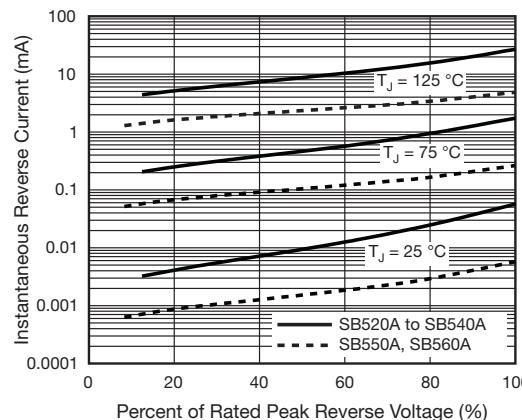


Fig. 4 - Typical Reverse Characteristics

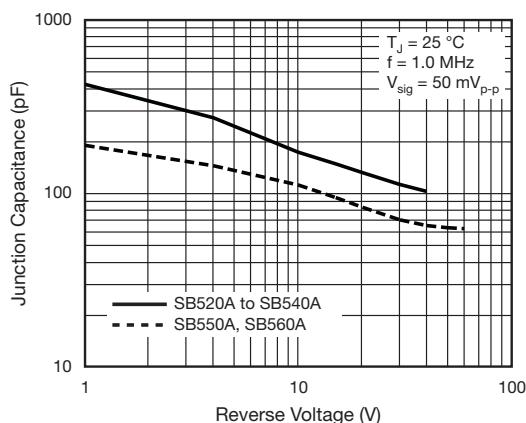


Fig. 5 - Typical Junction Capacitance

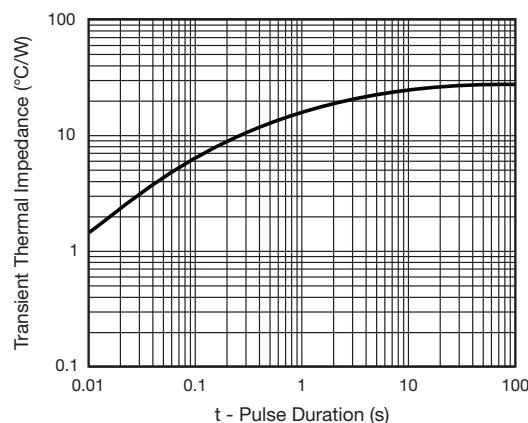
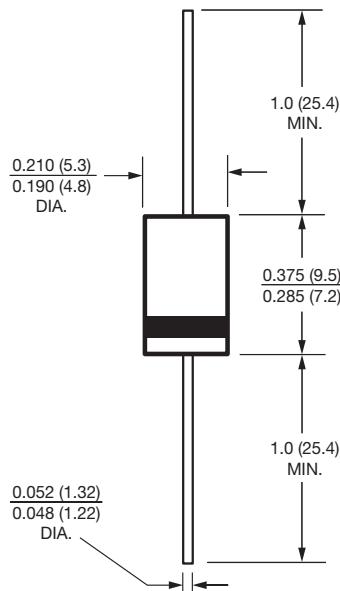


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-201AD



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