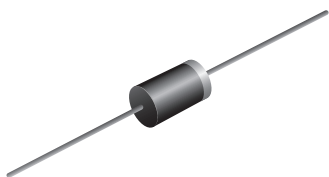


Schottky Barrier Rectifier


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)

| PARAMETER | TEST CONDITIONS | | SYMBOL | SB520 | SB530 | SB540 | SB550 | SB560 | UNIT | |
|--|-----------------|-------------------------------------|-------------|-------|-------|-------|-------|-------|------|----|
| Maximum instantaneous forward voltage | 5.0 A | | $V_F^{(1)}$ | 0.48 | | | 0.65 | | V | |
| Maximum instantaneous reverse current at rated DC blocking voltage | | $T_A = 25\text{ }^{\circ}\text{C}$ | $I_R^{(1)}$ | 0.5 | | | | | | mA |
| | | $T_A = 100\text{ }^{\circ}\text{C}$ | | 50 | | | 25 | | | |

Note

(1) Pulse test: 300 μ 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 _{θJA} ⁽¹⁾ | 25 | | | | | °C/W |
| | R _{θJL} ⁽¹⁾ | 8 | | | | | |

Note

(1) 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)

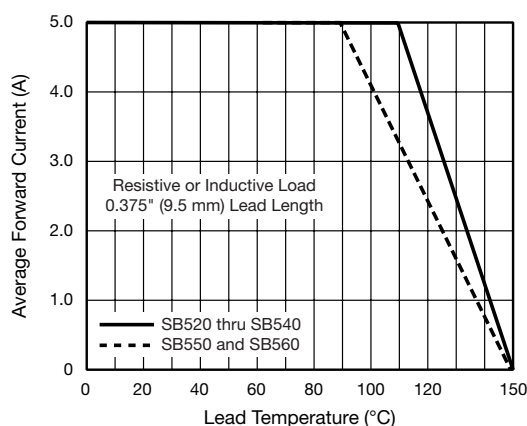


Fig. 1 - Forward Current Derating Curve

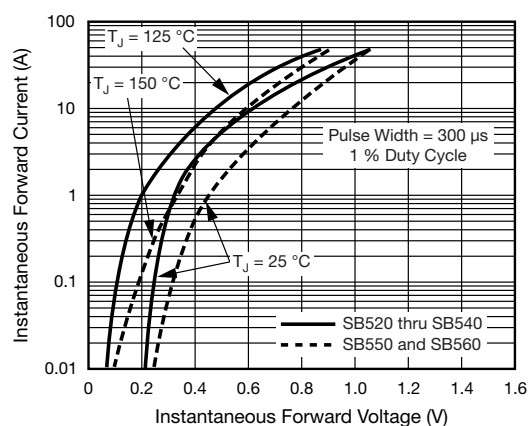


Fig. 3 - Typical Instantaneous Forward Characteristics

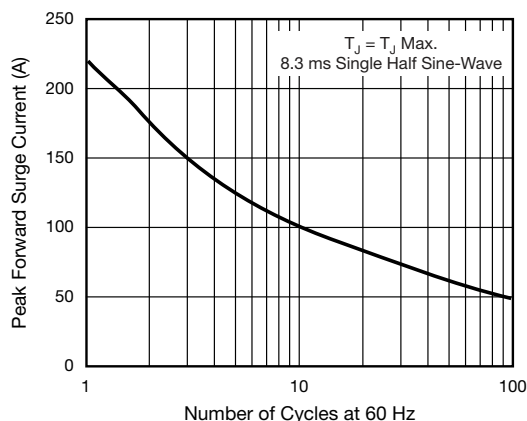


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

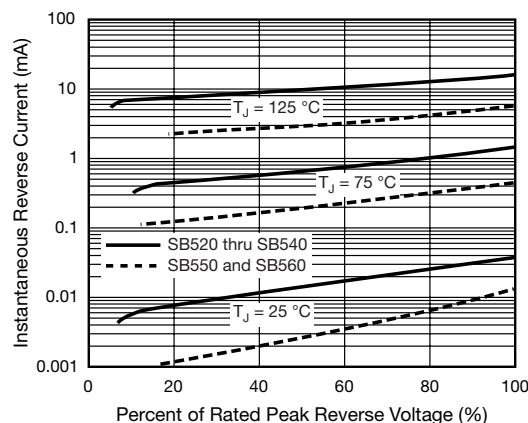


Fig. 4 - Typical Reverse Characteristics

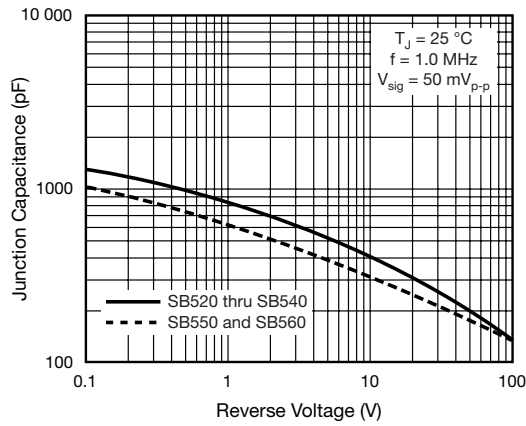


Fig. 5 - Typical Junction Capacitance

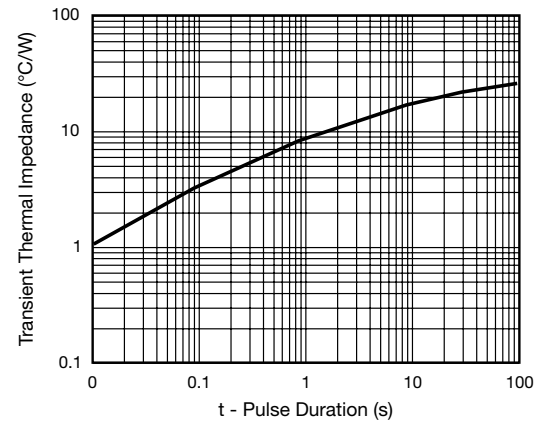
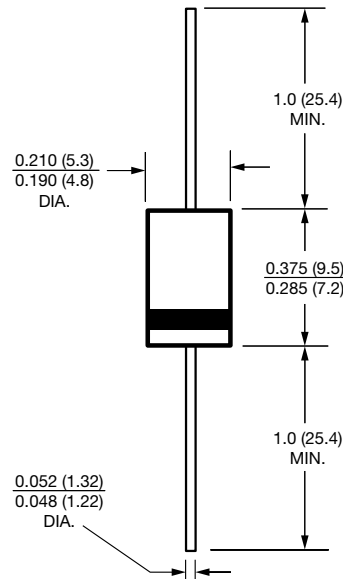


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-201AD





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