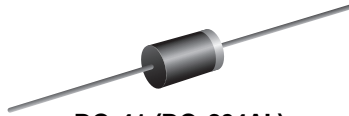




**THE DATASHEET OF
SB160-E3/73**



Schottky Barrier Plastic Rectifier


DO-41 (DO-204AL)

FEATURES

- Guardring for overvoltage protection
- Very small conduction losses
- 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
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

| PRIMARY CHARACTERISTICS | |
|-------------------------|------------------------------------|
| $I_{F(AV)}$ | 1.0 A |
| V_{RRM} | 10 V, 20 V, 30 V, 40 V, 50 V, 60 V |
| I_{FSM} | 50 A |
| V_F | 0.48 V, 0.65 V |
| T_J max. | 125 °C, 150 °C |
| Package | DO-41 (DO-204AL) |
| Circuit configuration | Single |

TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

MECHANICAL DATA

Case: DO-41 (DO-204AL)

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 ($T_A = 25\text{ °C}$ unless otherwise noted) | | | | | | | | |
|--|-------------|--------------|-------|-------|-------|--------------|-------|------------|
| PARAMETER | SYMBOL | SB110 | SB120 | SB130 | SB140 | SB150 | SB160 | UNIT |
| Maximum repetitive peak reverse voltage | V_{RRM} | 10 | 20 | 30 | 40 | 50 | 60 | V |
| Maximum RMS voltage | V_{RMS} | 7 | 14 | 21 | 28 | 35 | 42 | V |
| Maximum DC blocking voltage | V_{DC} | 10 | 20 | 30 | 40 | 50 | 60 | V |
| Maximum average forward rectified current at 0.375" (9.5 mm) lead length (fig. 1) | $I_{F(AV)}$ | 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/ μ s |
| Operating junction temperature range | T_J | -65 to + 125 | | | | -65 to + 150 | | °C |
| Storage temperature range | T_{STG} | -65 to + 150 | | | | | | °C |

| ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ °C}$ unless otherwise noted) | | | | | | | | | |
|---|-----------------------|-------------|-------|-------|-------|-------|-------|-------|------|
| PARAMETER | TEST CONDITIONS | SYMBOL | SB110 | SB120 | SB130 | SB140 | SB150 | SB160 | UNIT |
| Maximum instantaneous forward voltage | 1.0 A | $V_F^{(1)}$ | 0.48 | | | | 0.65 | | V |
| Maximum instantaneous reverse current at rated DC blocking voltage | $T_A = 25\text{ °C}$ | $I_R^{(1)}$ | 0.50 | | | | | | mA |
| | $T_A = 100\text{ °C}$ | | 10 | | 5.0 | | | | |

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 | SB110 | SB120 | SB130 | SB140 | SB150 | SB160 | UNIT |
| Typical thermal resistance | $R_{\theta JA}$ (1) | 50 | | | | | | $^\circ\text{C/W}$ |
| | $R_{\theta JL}$ (1) | 15 | | | | | | |

Note

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

| ORDERING INFORMATION (Example) | | | | |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| SB140-E3/54 | 0.35 | 54 | 5500 | 13" diameter paper tape and reel |
| SB140-E3/73 | 0.35 | 73 | 3000 | Ammo pack packaging |

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

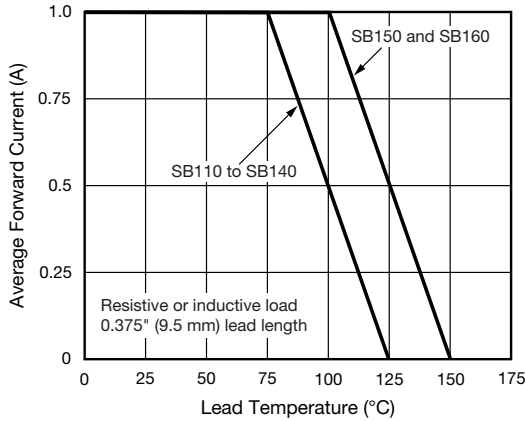


Fig. 1 - Forward Current Derating Curve

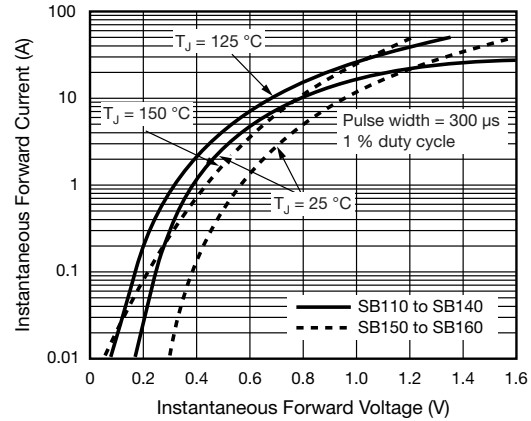


Fig. 3 - Typical Instantaneous Forward Characteristics

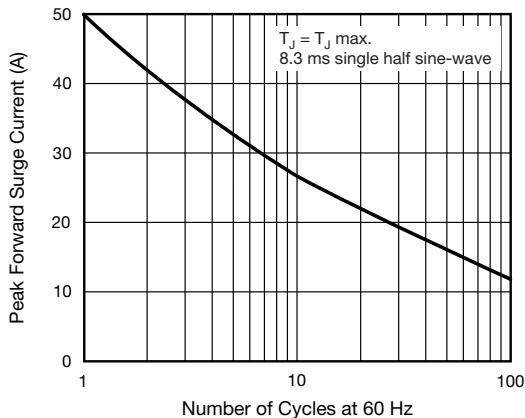


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

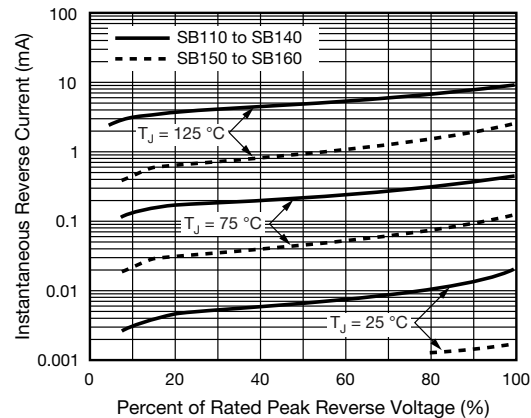


Fig. 4 - Typical Reverse Characteristics

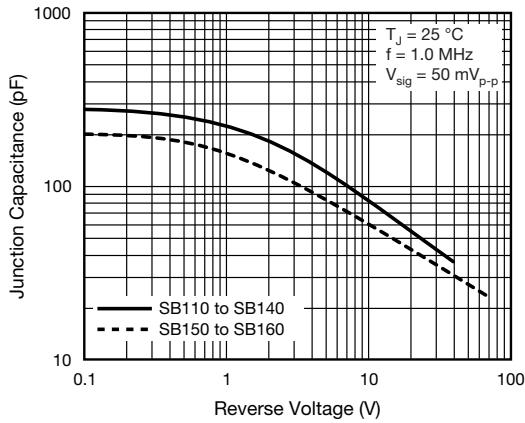


Fig. 5 - Typical Junction Capacitance

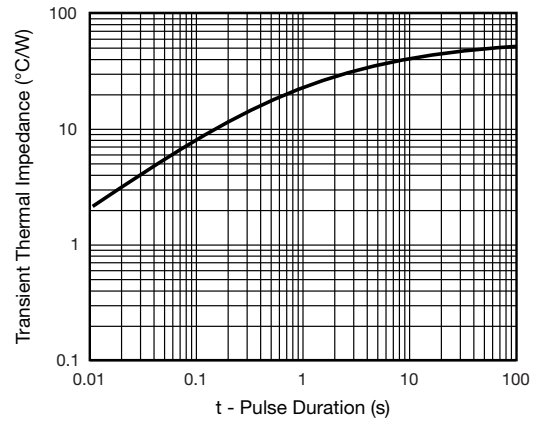
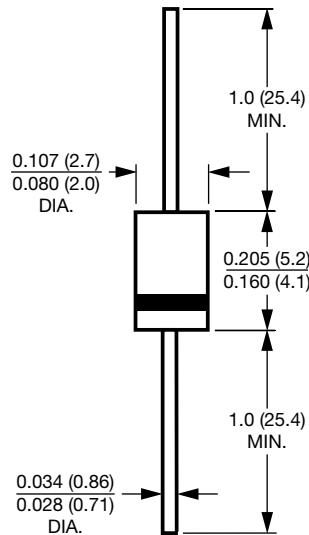


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-41 (DO-204AL)





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