



**THE DATASHEET OF
SB220-E3/73**



Schottky Barrier Plastic Rectifier


DO-15 (DO-204AC)

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 | |
|-------------------------|------------------------------|
| $I_{F(AV)}$ | 2.0 A |
| V_{RRM} | 20 V, 30 V, 40 V, 50 V, 60 V |
| I_{FSM} | 60 A |
| V_F | 0.50 V, 0.68 V |
| T_J max. | 125 °C, 150 °C |
| Package | DO-15 (DO-204AC) |
| 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-15 (DO-204AC)

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

| MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted) | | | | | | | |
|--|-------------|-------------|-------|-------|-------------|-------|------------|
| PARAMETER | SYMBOL | SB220 | SB230 | SB240 | SB250 | SB260 | 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) | $I_{F(AV)}$ | 2.0 | | | | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 60 | | | | | A |
| Maximum full load reverse current, full cycle average at $T_A = 75\text{ °C}$ | $I_{R(AV)}$ | 30 | | | | | mA |
| 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 ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | | | | |
|--|-----------------------------------|-------------|-------|-------|-------|-------|-------|------|
| PARAMETER | TEST CONDITIONS | SYMBOL | SB220 | SB230 | SB240 | SB250 | SB260 | UNIT |
| Maximum instantaneous forward voltage | 2.0 A | $V_F^{(1)}$ | 0.50 | | | 0.68 | | V |
| Maximum instantaneous reverse current at rated DC blocking voltage | $T_A = 25\text{ }^\circ\text{C}$ | $I_R^{(1)}$ | 0.50 | | | | | mA |
| | $T_A = 100\text{ }^\circ\text{C}$ | | 15 | | 8.0 | | | |
| Typical junction capacitance | | C_J | 170 | | | | | pF |

Note

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

| THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | | | |
|---|-----------------------|-------|-------|-------|-------|-------|--------------------|
| PARAMETER | SYMBOL | SB220 | SB230 | SB240 | SB250 | SB260 | UNIT |
| Typical thermal resistance | $R_{\theta JA}^{(1)}$ | 45 | | | | | $^\circ\text{C/W}$ |
| | $R_{\theta JL}^{(1)}$ | 14 | | | | | |

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 |
| SB240-E3/54 | 0.398 | 54 | 4000 | 13" diameter paper tape and reel |
| SB240-E3/73 | 0.398 | 73 | 2000 | Ammo pack packaging |



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

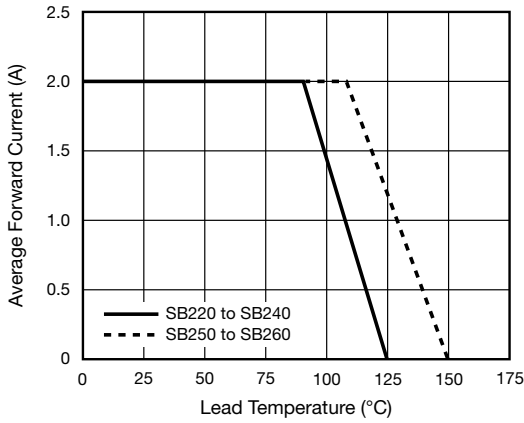


Fig. 1 - Forward Current Derating Curve

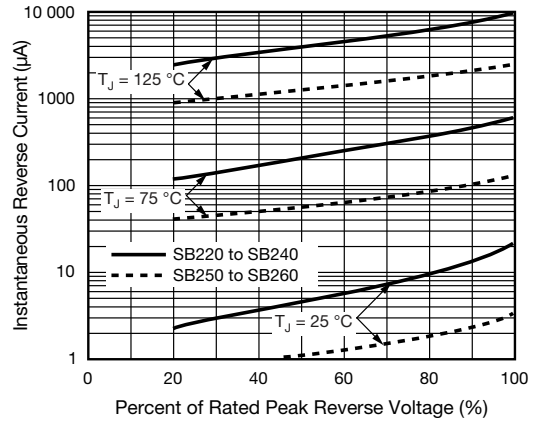


Fig. 4 - Typical Reverse Characteristics

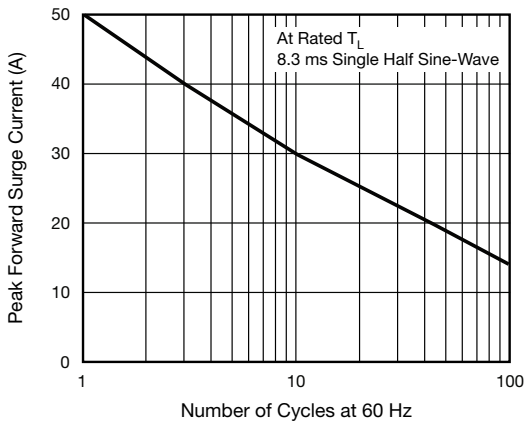


Fig. 2 - Maximum Non-Repetitive Surge Current

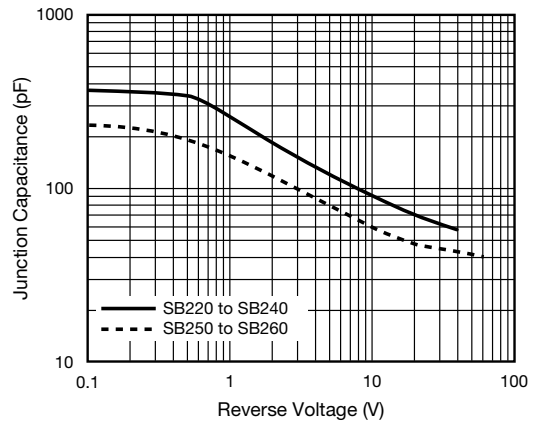


Fig. 5 - Typical Junction Capacitance

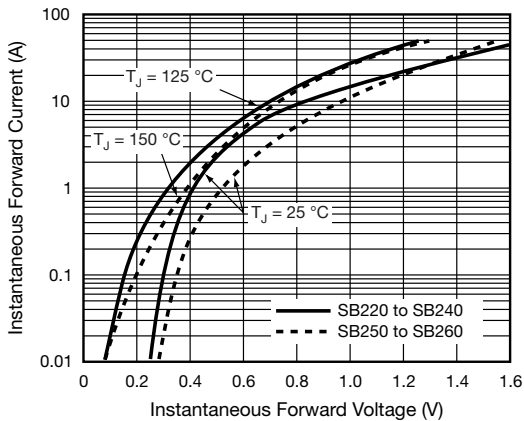


Fig. 3 - Typical Instantaneous Forward Characteristics

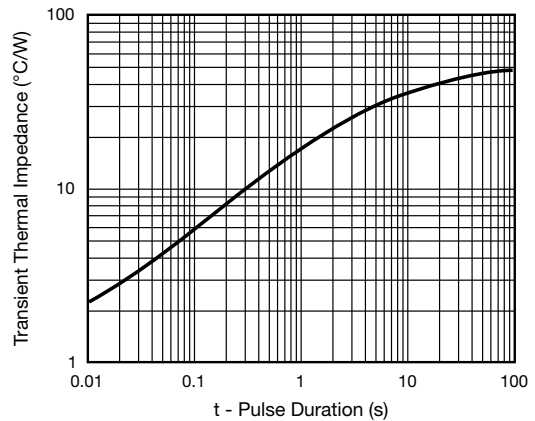
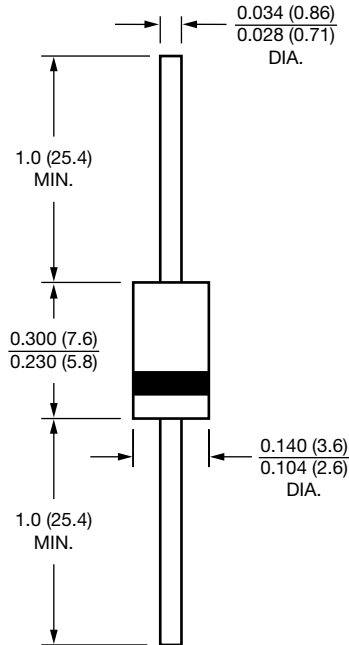


Fig. 6 - Typical Transient Thermal Impedance



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-15 (DO-204AC)





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