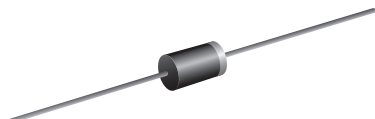


## Schottky Barrier Plastic Rectifier


**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](http://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 <sub>RRM</sub>   | 20          | 30    | 40    | 50          | 60    | V    |
| Maximum RMS voltage                                                                | V <sub>RMS</sub>   | 14          | 21    | 28    | 35          | 42    | V    |
| Maximum DC blocking voltage                                                        | V <sub>DC</sub>    | 20          | 30    | 40    | 50          | 60    | V    |
| Maximum average forward rectified current at 0.375" (9.5 mm) lead length (fig. 1)  | I <sub>F(AV)</sub> | 2.0         |       |       |             |       | A    |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I <sub>FSM</sub>   | 60          |       |       |             |       | A    |
| Maximum full load reverse current, full cycle average at T <sub>A</sub> = 75 °C    | I <sub>R(AV)</sub> | 30          |       |       |             |       | mA   |
| Voltage rate of change (rated V <sub>R</sub> )                                     | dV/dt              | 10 000      |       |       |             |       | V/μs |
| Operating junction temperature range                                               | T <sub>J</sub>     | -65 to +125 |       |       | -65 to +150 |       | °C   |
| Storage temperature range                                                          | T <sub>STG</sub>   | -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**

<sup>(1)</sup> Pulse test: 300  $\mu\text{s}$  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 <sub>θJA</sub> <sup>(1)</sup> | 45    |       |       |       |       | °C/W |
|                            | R <sub>θJL</sub> <sup>(1)</sup> | 14    |       |       |       |       |      |

**Note**

<sup>(1)</sup> 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 ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

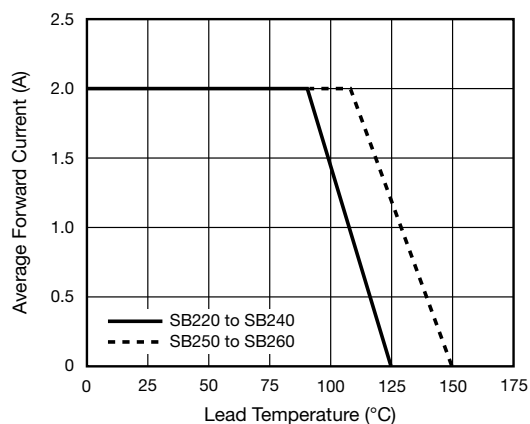


Fig. 1 - Forward Current Derating Curve

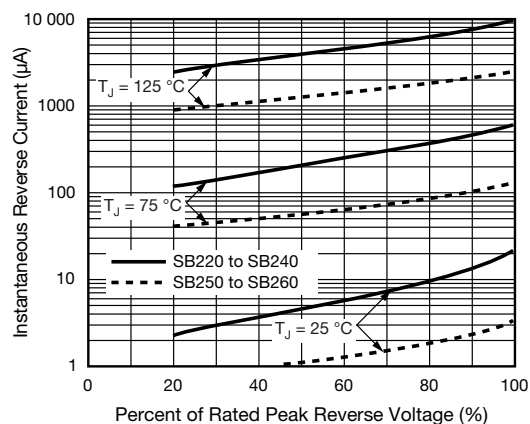


Fig. 4 - Typical Reverse Characteristics

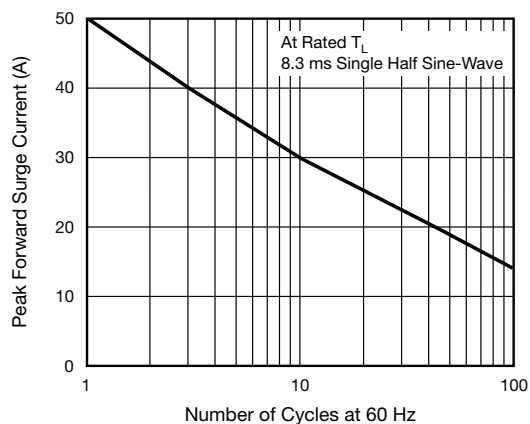


Fig. 2 - Maximum Non-Repetitive Surge Current

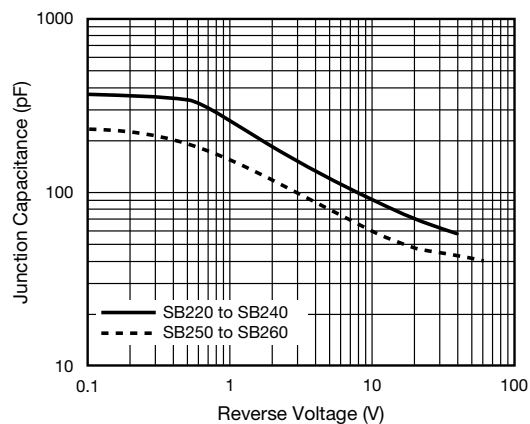


Fig. 5 - Typical Junction Capacitance

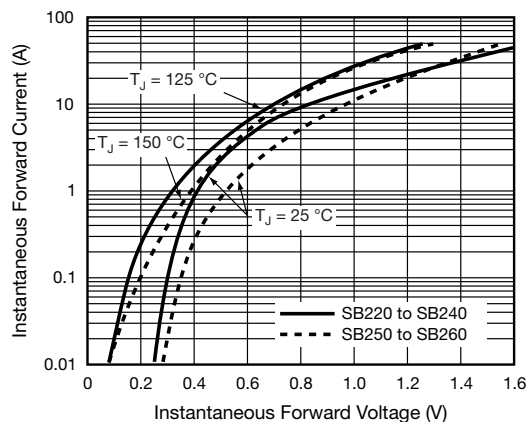


Fig. 3 - Typical Instantaneous Forward Characteristics

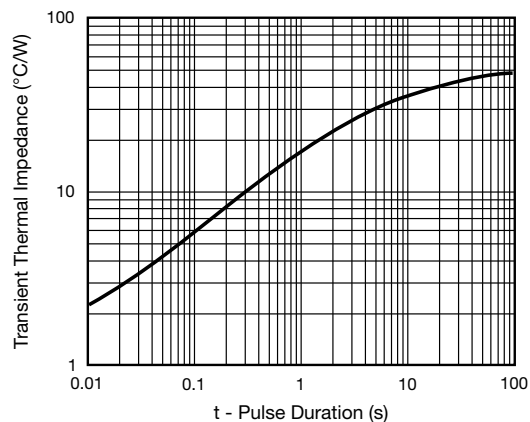
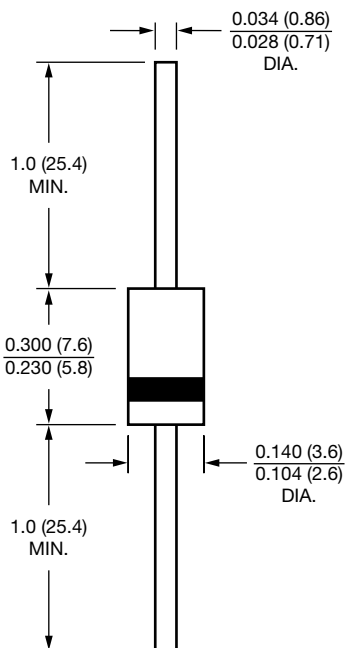


Fig. 6 - Typical Transient Thermal Impedance



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

**DO-15 (DO-204AC)**





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