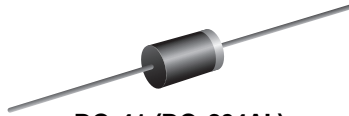




**THE DATASHEET OF  
SB140-E3/73**



## 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](http://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/ $\mu$ 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

<sup>(1)</sup> Pulse test: 300  $\mu$ s pulse width, 1 % duty cycle



| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                 |       |       |       |       |       |       |      |
|---|---------------------------------|-------|-------|-------|-------|-------|-------|------|
| PARAMETER   | SYMBOL                          | SB110 | SB120 | SB130 | SB140 | SB150 | SB160 | UNIT |
| Typical thermal resistance  | R <sub>θJA</sub> <sup>(1)</sup> | 50    |       |       |       |       |       | °C/W |
|   | R <sub>θJL</sub> <sup>(1)</sup> | 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<sub>A</sub> = 25 °C unless otherwise noted)**

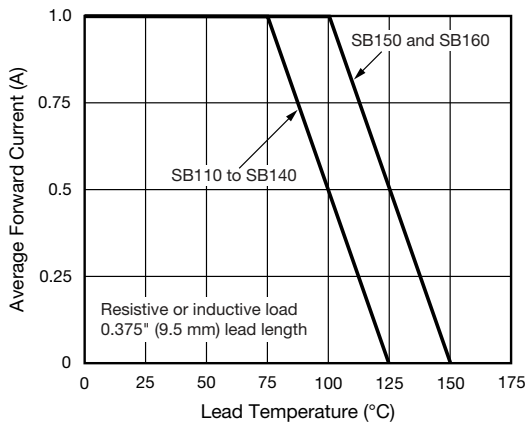


Fig. 1 - Forward Current Derating Curve

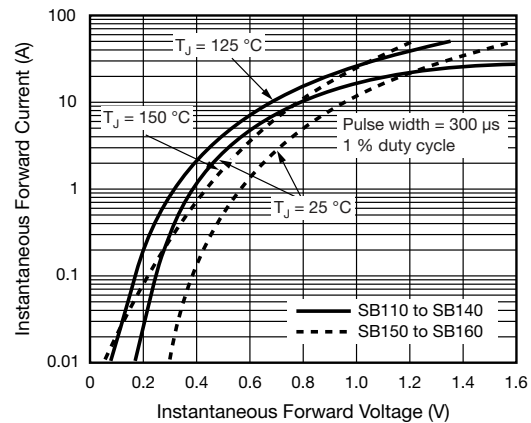


Fig. 3 - Typical Instantaneous Forward Characteristics

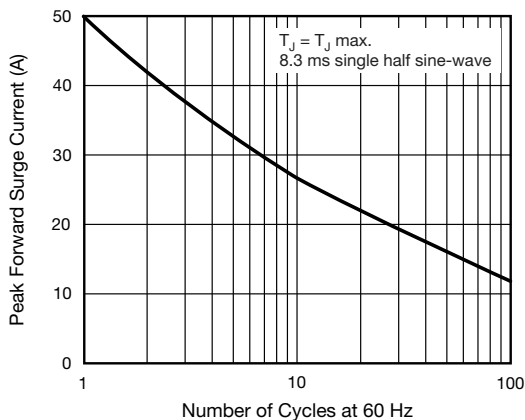


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

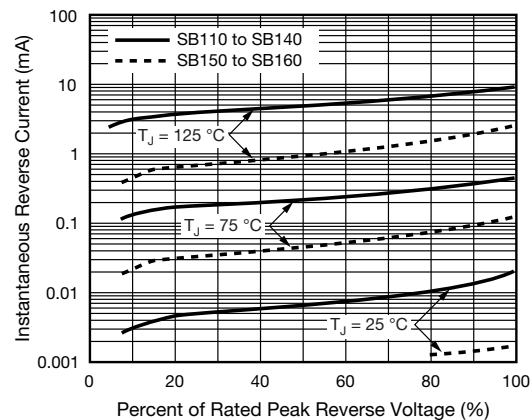


Fig. 4 - Typical Reverse Characteristics

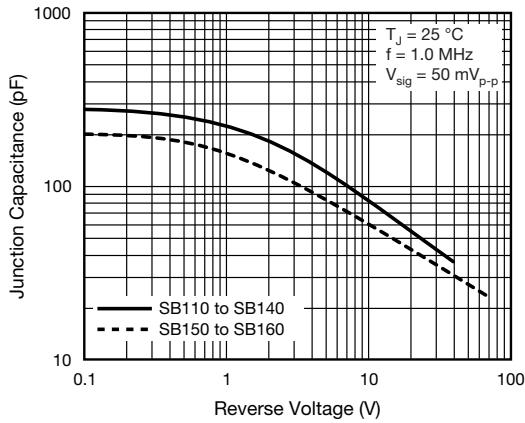


Fig. 5 - Typical Junction Capacitance

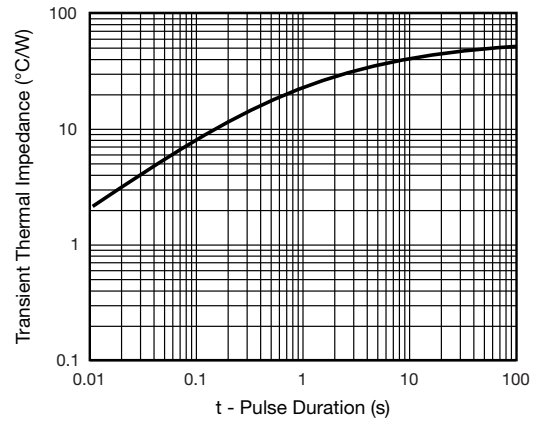
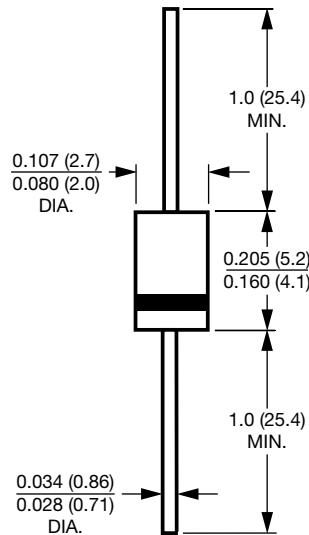


Fig. 6 - Typical Transient Thermal Impedance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### DO-41 (DO-204AL)





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