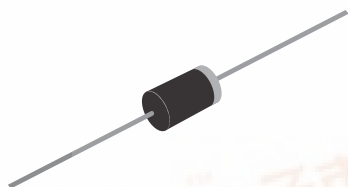


## Miniature Schottky Barrier Rectifier



Case Style MPG06

### PRIMARY CHARACTERISTICS

|             |                |
|-------------|----------------|
| $I_{F(AV)}$ | 0.6 A          |
| $V_{RRM}$   | 20 V to 60 V   |
| $I_{FSM}$   | 20 A           |
| $V_F$       | 0.55 V, 0.70 V |
| $T_J$ max.  | 125 °C, 150 °C |

### FEATURES

- Guardring for overvoltage protection
- Very small conduction losses
- Extremely fast switching
- Low forward voltage drop
- High frequency operation
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and 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:** MPG06

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test

**Polarity:** Color band denotes the cathode end

### MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)

| PARAMETER                                                                          | SYMBOL             | SB020         | SB030 | SB040 | SB050         | SB060 | 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> | 0.6           |       |       |               |       | A    |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I <sub>FSM</sub>   | 20            |       |       |               |       | A    |
| 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 ( $T_A = 25$ °C unless otherwise noted)

| PARAMETER                                                                         | TEST CONDITIONS         | SYMBOL         | SB020 | SB030 | SB040 | SB050 | SB060 | UNIT |    |
|-----------------------------------------------------------------------------------|-------------------------|----------------|-------|-------|-------|-------|-------|------|----|
| Maximum instantaneous forward voltage <sup>(1)</sup>                              | 0.6 A                   | V <sub>F</sub> | 0.55  |       |       | 0.70  |       | V    |    |
| Maximum instantaneous reverse current at rated DC blocking voltage <sup>(1)</sup> | T <sub>A</sub> = 25 °C  | I <sub>R</sub> | 0.5   |       |       |       |       |      | mA |
|                                                                                   | T <sub>A</sub> = 100 °C |                | 10    |       |       | 5.0   |       |      |    |

#### Note:

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

| THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted) |                                    |       |       |          |       |       |                      |
|--------------------------------------------------------------------------------------|------------------------------------|-------|-------|----------|-------|-------|----------------------|
| PARAMETER                                                                            | SYMBOL                             | SB020 | SB030 | SB040    | SB050 | SB060 | UNIT                 |
| Typical thermal resistance <sup>(1)</sup>                                            | $R_{\theta JA}$<br>$R_{\theta JL}$ |       |       | 80<br>20 |       |       | $^{\circ}\text{C/W}$ |

**Note:**

(1) Thermal resistance junction to lead P.C.B. mounted 0.375" (9.5 mm) lead length

| ORDERING INFORMATION (Example) |                 |                        |               |                                  |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
| SB040-E3/54                    | 0.203           | 54                     | 5500          | 13" diameter paper tape and reel |
| SB040-E3/73                    | 0.203           | 73                     | 3000          | Ammo pack packaging              |

**RATINGS AND CHARACTERISTICS CURVES**

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

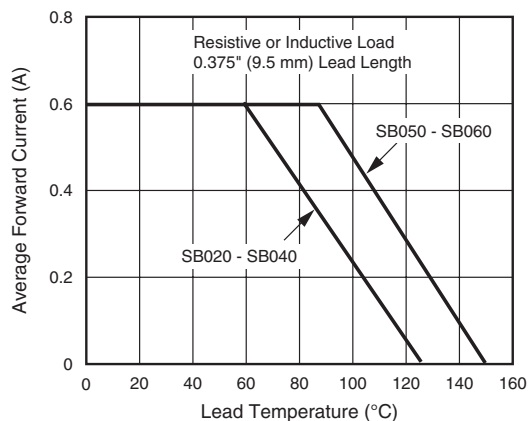


Figure 1. Forward Current Derating Curve

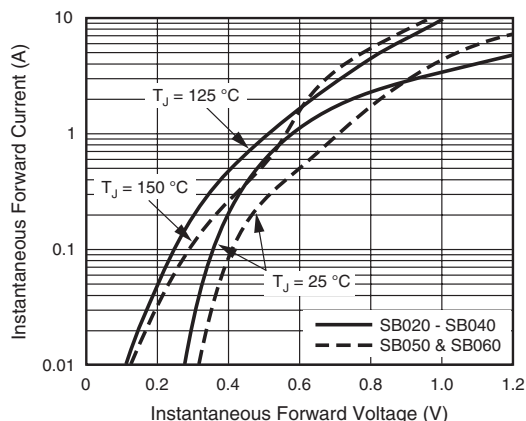


Figure 3. Typical Instantaneous Forward Characteristics

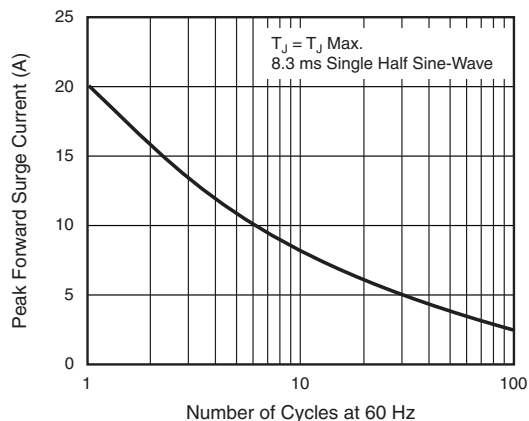


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

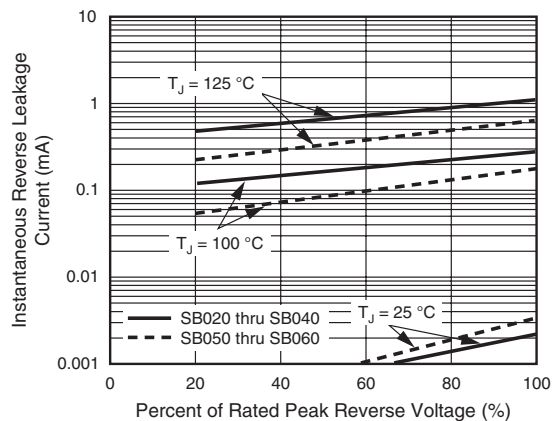


Figure 4. Typical Reverse Leakage Characteristics

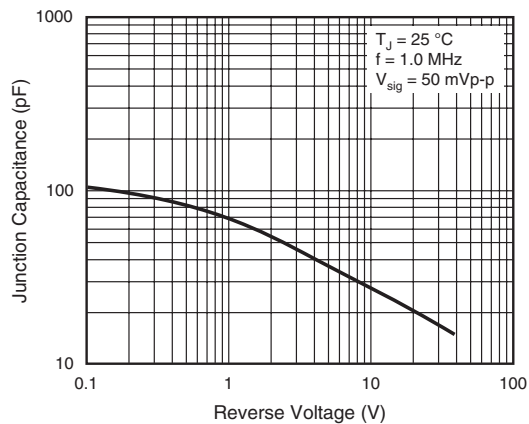


Figure 5. Typical Junction Capacitance

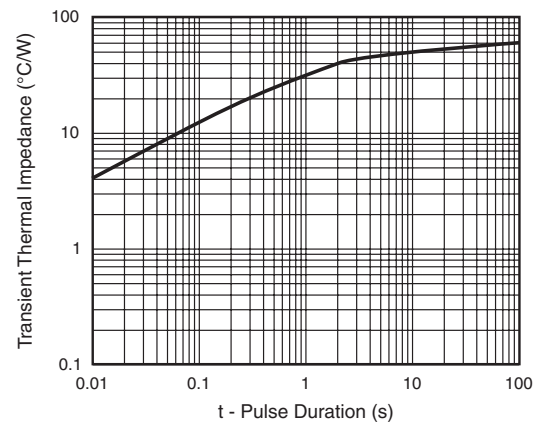
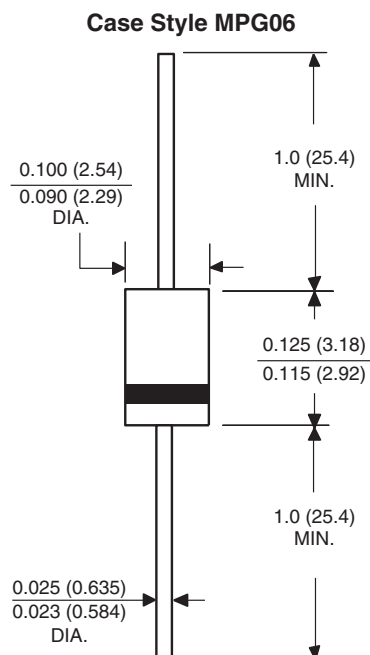


Figure 6. Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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