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October 2014

MBR0540 Schottky Rectifier

Features

- 0.5 A, Low Forward Voltage less than 460 mV
- 400 mW Power Dissipation Package
- Compact Surface Mount Package with The Same Footprint as Mini-melf



SOD-123

* Band marking denotes cathode

Ordering Information

| Part Number | Top Mark | Package | Packing Method |
|-------------|----------|------------|----------------|
| MBR0540 | B4 | SOD-123 2L | Tape and Reel |

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

| Symbol | Parameter | Value | Unit |
|-------------|--|-------------|------------------|
| V_{RRM} | Maximum Repetitive Reverse Voltage | 40 | V |
| $I_{F(AV)}$ | Average Rectified Forward Current | 500 | mA |
| I_{FSM} | Non Repetitive Peak Forward Current (Surge Applied at Rated Load Conditions Half-Wave, Single-Phase, 60 Hz) | 5.5 | A |
| T_{STG} | Storage Temperature Range | -65 to +150 | $^\circ\text{C}$ |
| T_{Jmax} | Operating Junction Temperature | -65 to +125 | $^\circ\text{C}$ |

Thermal Characteristics

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

| Symbol | Parameter | Value | Unit |
|-----------------|--|-------|--------------------|
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient ⁽¹⁾ | 206 | $^\circ\text{C/W}$ |
| $R_{\theta JL}$ | Thermal Resistance, Junction-to-Lead ⁽²⁾ | 118 | $^\circ\text{C/W}$ |

Notes:

1. 1.0 inch pad size (1.0 x 0.5 inch for each lead) on FR4 board.
2. Device is mounted on FR-4 PCB 0.013 mm.

Electrical Characteristics

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

| Symbol | Parameter | Conditions | Min. | Max. | Unit |
|--------|-----------------|---|------|------|---------------|
| V_F | Forward Voltage | $I_F = 500 \text{ mA}$ | | 510 | mV |
| | | $I_F = 500 \text{ mA}, T_A = 100^\circ\text{C}$ | | 460 | |
| | | $I_F = 1.0 \text{ A}$ | | 620 | |
| | | $I_F = 1.0 \text{ A}, T_A = 100^\circ\text{C}$ | | 610 | |
| I_R | Reverse Current | $V_R = 20 \text{ V}$ | | 10 | μA |
| | | $V_R = 20 \text{ V}, T_A = 100^\circ\text{C}$ | | 5.0 | mA |
| | | $V_R = 40 \text{ V}$ | | 20 | μA |
| | | $V_R = 40 \text{ V}, T_A = 100^\circ\text{C}$ | | 13 | mA |

Typical Performance Characteristics

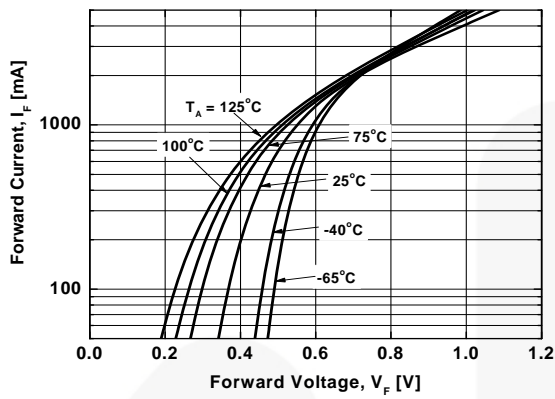


Figure 1. Forward Current vs. Forward Voltage

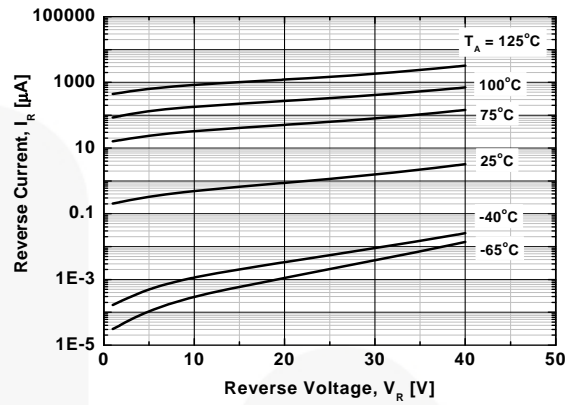


Figure 2. Reverse Current vs. Reverse Voltage

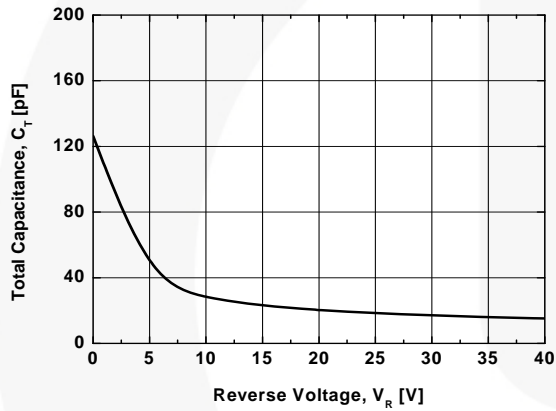
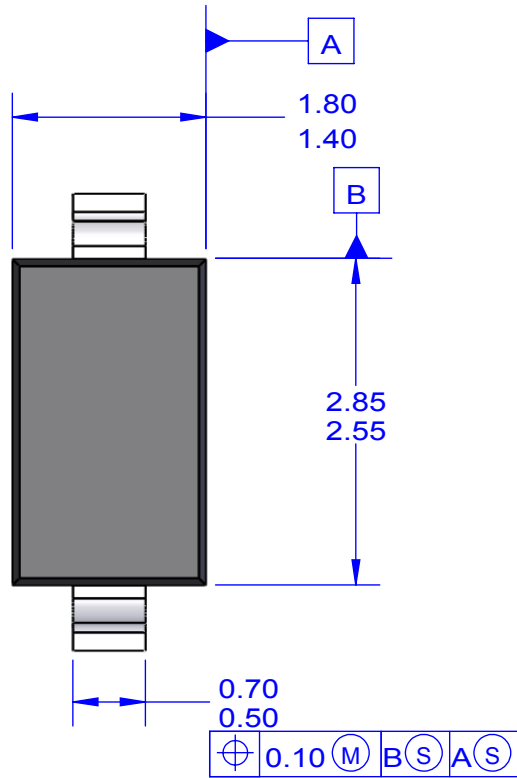
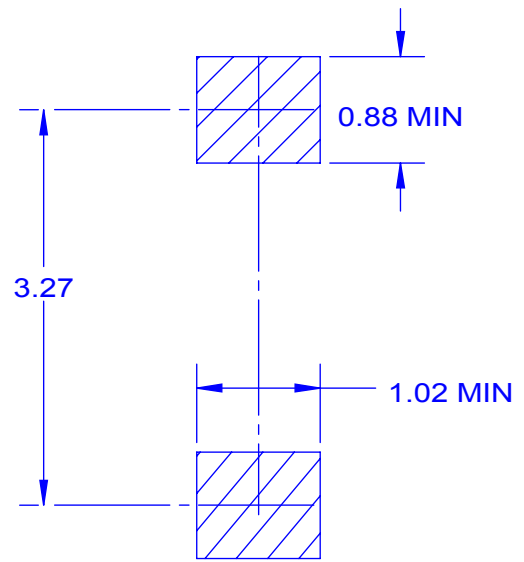


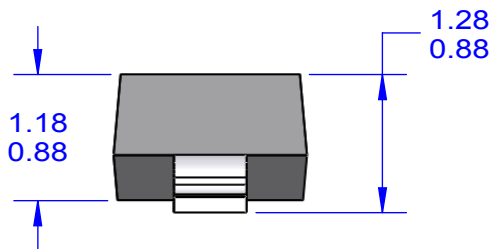
Figure 3. Total Capacitance



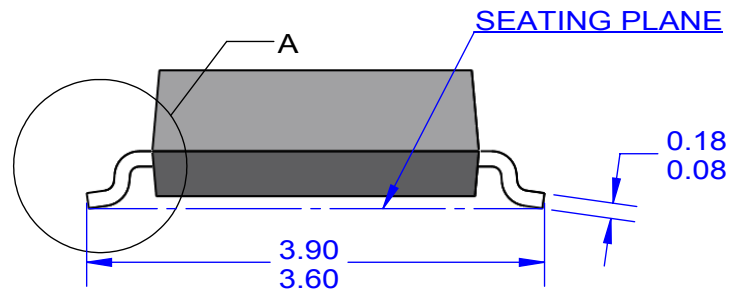
TOP VIEW



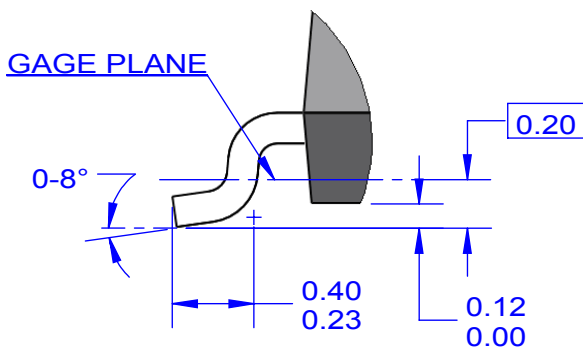
LAND PATTERN RECOMMENDATION



FRONT VIEW



SIDE VIEW



DETAIL "A"
SCALE 2:1

- NOTES: UNLESS OTHERWISE SPECIFIED
- A) PACKAGE REFERENCE: JEDEC, DO-215 ISSUE D, VARIATION AD.
 - B) ALL DIMENSIONS ARE IN MILLIMETERS.
 - C) DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
 - E) DRAWING FILE NAME: MA02AREV4

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