

# MBR0530

## Schottky Rectifier

### Features

- 0.5 A, Low Forward Voltage less than 430 mV
- Compact Surface Mount Package with The Same Footprint as Mini-melf

### Applications

- Solid-State Relays
- Industrial Controls
- Lighting Controls
- Static Power Switches
- AC Motor Starters

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

| Symbol      | Description                                                                                                 | Value       | Unit             |
|-------------|-------------------------------------------------------------------------------------------------------------|-------------|------------------|
| $V_{RRM}$   | Maximum Repetitive Reverse Voltage                                                                          | 30          | 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 | $^\circ\text{C}$ |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

Table 1. ORDERING INFORMATION

| Part Number | Top Mark | Package    | Packing Method |
|-------------|----------|------------|----------------|
| MBR0530     | B3       | SOD-123 2L | Tape and Reel  |

Table 2. THERMAL CHARACTERISTICS (Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted)

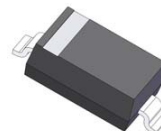
| Symbol          | Parameter                                        | Value | Unit               |
|-----------------|--------------------------------------------------|-------|--------------------|
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient (Note 1) | 206   | $^\circ\text{C/W}$ |
| $R_{\theta JL}$ | Thermal Resistance, Junction-to-Lead             | 173   | $^\circ\text{C/W}$ |

1. 1 inch square pad size on FR-4 board.



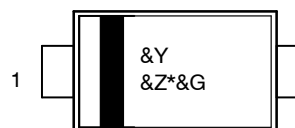
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SOD-123  
CASE 425-04

### MARKING DIAGRAM

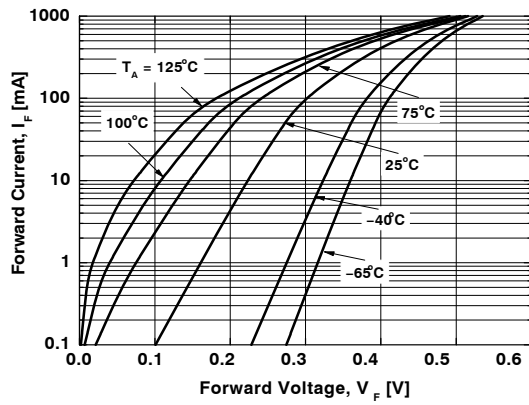


&Y = Binary Calendar Year Coding Scheme  
&Z = Assembly Plant Code  
\* = Specific Device Code B3  
&G = Single Digit Weekly Datecode

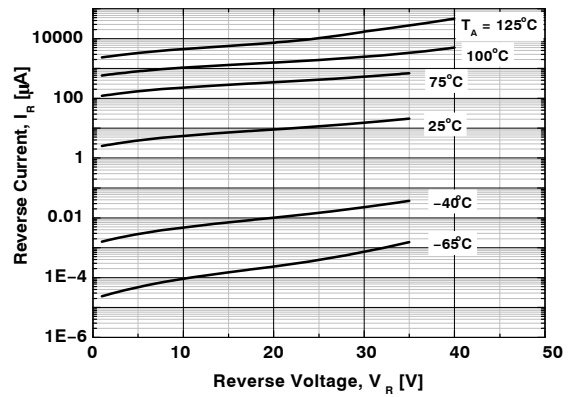
**Table 3. ELECTRICAL CHARACTERISTICS** (Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted)

| Symbol | Parameter       | Conditions                                     | Min. | Max. | Unit          |
|--------|-----------------|------------------------------------------------|------|------|---------------|
| $V_F$  | Forward Voltage | $I_F = 100\text{ mA}$                          |      | 375  | mV            |
|        |                 | $I_F = 100\text{ mA}, T_A = 100^\circ\text{C}$ |      | 340  |               |
|        |                 | $I_F = 500\text{ mA}$                          |      | 430  |               |
|        |                 | $I_F = 500\text{ mA}, T_A = 100^\circ\text{C}$ |      | 420  |               |
| $I_R$  | Reverse Current | $V_R = 15\text{ V}$                            |      | 20   | $\mu\text{A}$ |
|        |                 | $V_R = 30\text{ V}$                            |      | 130  | $\mu\text{A}$ |
|        |                 | $V_R = 30\text{ V}, T_A = 100^\circ\text{C}$   |      | 5    | mA            |

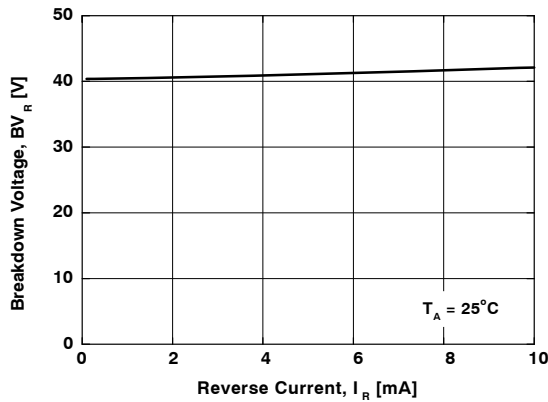
**TYPICAL PERFORMANCE CHARACTERISTICS**



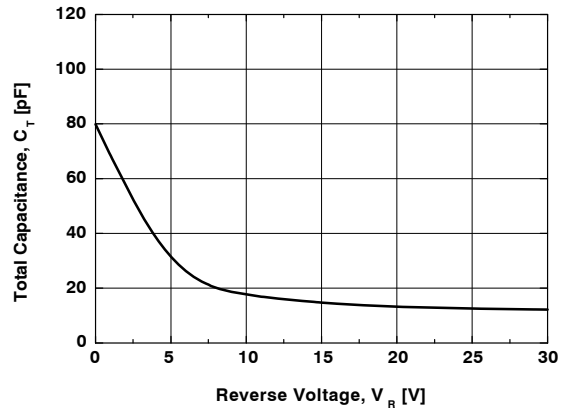
**Figure 1. Forward Current vs. Forward Voltage**



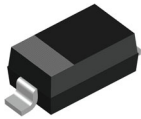
**Figure 2. Reverse Current vs. Reverse Voltage**



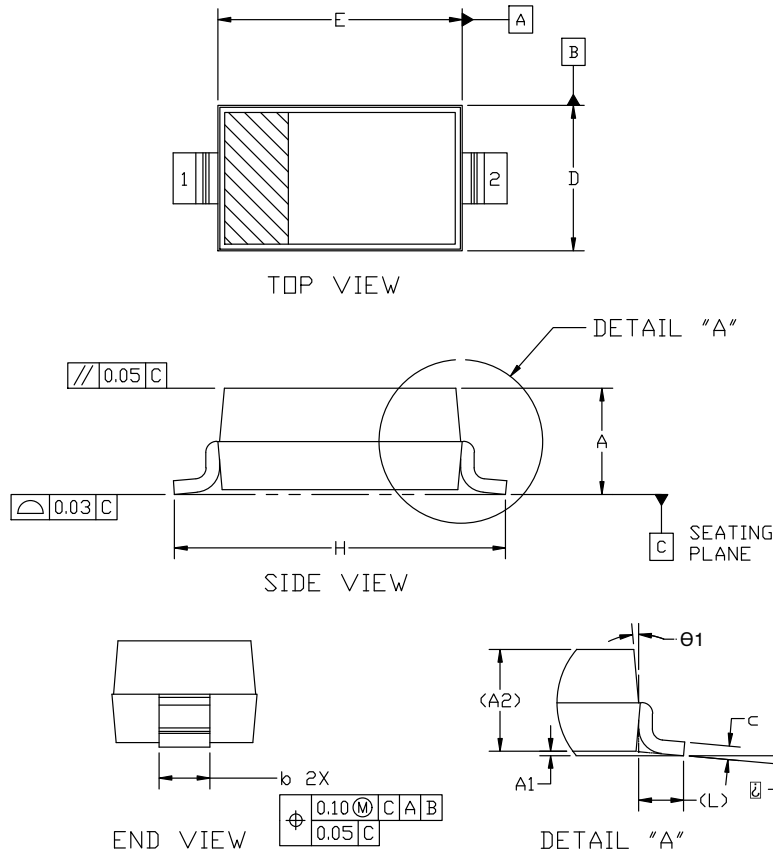
**Figure 3. Breakdown Voltage vs. Reverse Current**



**Figure 4. Total Capacitance**


**SOD-123 2-LEAD, 1.60x2.69x1.16**  
**CASE 425**  
**ISSUE H**

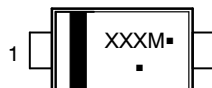
DATE 29 FEB 2024



## NOTES:

1. DIMENSION AND TOLERANCING PER ASME Y14.5M, 2018
2. CONTROLLING DIMENSION: MILLIMETERS

| DIM | MILLIMETER |      |      |
|-----|------------|------|------|
|     | MIN.       | NOM. | MAX. |
| A   | 0.94       | 1.17 | 1.35 |
| A1  | 0.00       | 0.05 | 0.10 |
| A2  | 1.16 REF.  |      |      |
| b   | 0.51       | 0.61 | 0.71 |
| c   | —          | —    | 0.15 |
| D   | 1.40       | 1.60 | 1.80 |
| E   | 2.54       | 2.69 | 2.84 |
| H   | 3.56       | 3.68 | 3.86 |
| L   | 0.25 REF.  |      |      |
| ⌀   | 0°         |      | 10°  |
| θ1  | 0°         |      | 10°  |

**GENERIC**  
**MARKING DIAGRAM\***


XXX = Specific Device Code  
M = Date Code  
▪ = Pb-Free Package

(Note: Microdot may be in either location)

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

STYLE 1:  
PIN 1. CATHODE  
2. ANODE

**RECOMMENDED MOUNTING FOOTPRINT**

\*For additional information on or Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference manual SOLDERM/D.

|                         |                                       |                                                                                                                                                                                  |
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| <b>DESCRIPTION:</b>     | <b>SOD-123 2-LEAD, 1.60x2.69x1.16</b> | <b>PAGE 1 OF 1</b>                                                                                                                                                               |

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