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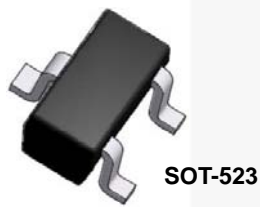


August 2015

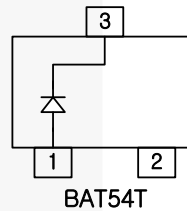
# BAT54T / BAT54ST Schottky Barrier Diode

## Features

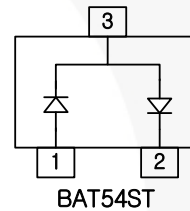
- Low Forward Voltage Drop
- Surface Mount Device at 0.95 mm Maximum Height
- MSL 1 per J-STD-020
- Pb Free and RoHS Compliant
- Matte Sn Lead Finish
- Green Mold Compound



SOT-523



BAT54T



BAT54ST

## Ordering Information

| Part Number | Top Mark | Package    | Packing Method |
|-------------|----------|------------|----------------|
| BAT54T      | L1       | SOT-523 3L | Tape and Reel  |
| BAT54ST     | L4       | SOT-523 3L | 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 | 30          | V                |
| $I_{F(AV)}$ | Average Rectified Forward Current  | 200         | mA               |
| $T_J$       | Operating Junction Temperature     | 125         | $^\circ\text{C}$ |
| $T_{STG}$   | Storage Temperature Range          | -55 to +125 | $^\circ\text{C}$ |

### Thermal Characteristics<sup>(1)</sup>

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

| Symbol          | Parameter   | Value | Unit                      |
|-----------------|---|-------|---------------------------|
| $P_D$           | Power Dissipation   | 150   | mW                        |
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient                                       | 500   | $^\circ\text{C}/\text{W}$ |
| $\Psi_{JL}$     | Junction-to-Lead Thermal Characteristics,<br>Thermocouple Soldered to Cathode | 165   | $^\circ\text{C}/\text{W}$ |

**Note:**

1. Device mounted on FR-4 PCB minimum land pad

### Electrical Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted. Parameters are tested per individual diode.

| Symbol   | Parameter                 | Conditions   | Min. | Max. | Unit          |
|----------|---------------------------|--|------|------|---------------|
| $BV_R$   | Reverse Breakdown Voltage | $I_R = 100 \mu\text{A}$  | 30   |      | V             |
| $I_R$    | Reverse Leakage Current   | $V_R = 25 \text{ V}$   |      | 2    | $\mu\text{A}$ |
| $V_F$    | Forward Voltage           | $I_F = 0.1 \text{ mA}$   |      | 0.24 | V             |
|          |                           | $I_F = 1 \text{ mA}$   |      | 0.32 |               |
|          |                           | $I_F = 10 \text{ mA}$  |      | 0.40 |               |
|          |                           | $I_F = 30 \text{ mA}$  |      | 0.50 |               |
|          |                           | $I_F = 100 \text{ mA}$   |      | 1.00 |               |
| $C_T$    | Total Capacitance         | $V_R = 1 \text{ V}, f = 1 \text{ MHz}$                                     |      | 10   | pF            |
| $t_{rr}$ | Reverse Recovery Time     | $I_F = I_R = 10 \text{ mA}, I_{RR} = 0.1 \times I_R$<br>$R_L = 100 \Omega$ |      | 5    | ns            |

## Typical Performance Characteristics

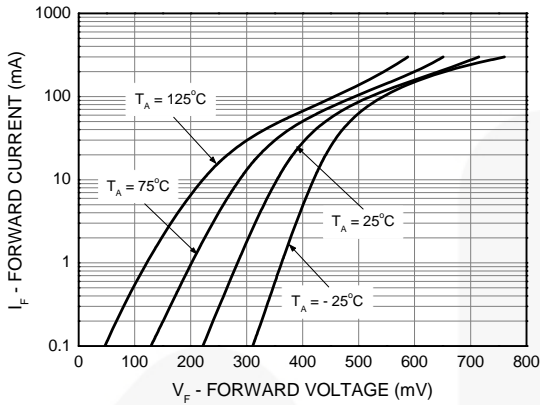


Figure 1. Forward Current vs. Forward Voltage

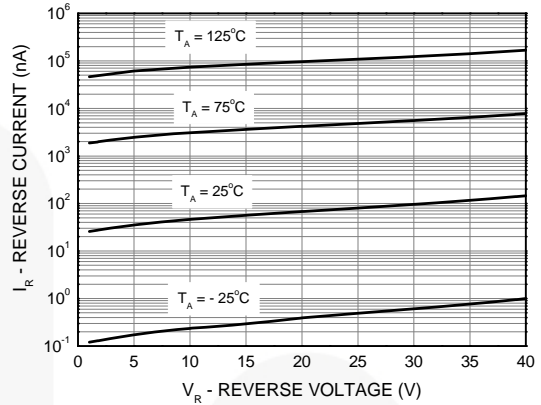


Figure 2. Reverse Current vs. Reverse Voltage

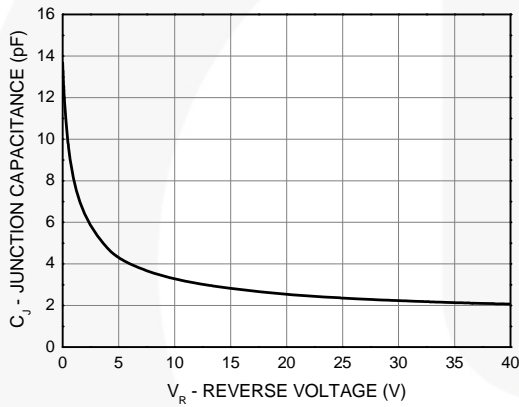


Figure 3. Total Capacitance vs. Reverse Voltage

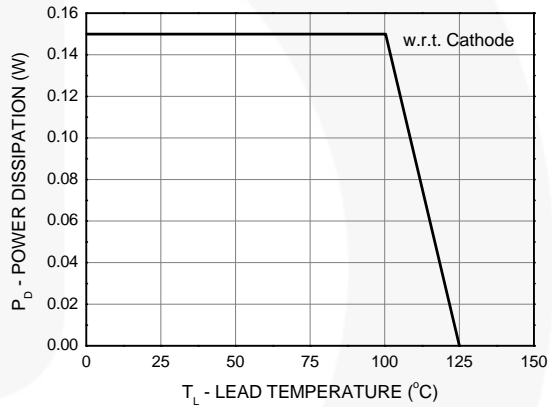
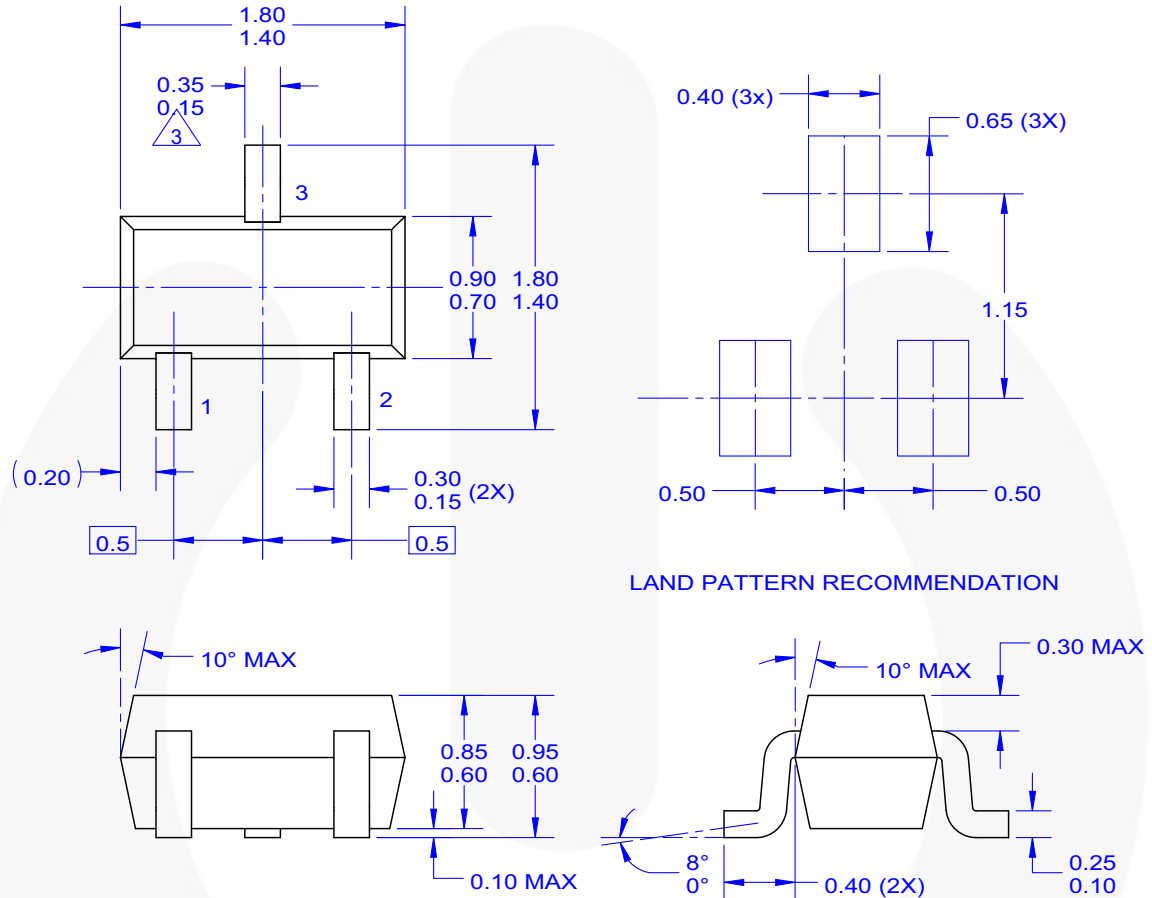


Figure 4. Power Derating Curve

Physical Dimensions



NOTES:

- A. REFERENCE TO EIAJ SC75 STANDARD.
- B. ALL DIMENSIONS ARE IN MILLIMETERS.
- C. DOES NOT COMPLY EIAJ SC75 STANDARD.
- D. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR PROTRUSIONS.
- E. LAND PATTERN RECOMMENDATION BASE FROM EIAJ STD.
- F. DRAWING FILE NAME: MKT-MAD03B REV1

Figure 5. 3-Lead, SOT523



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