



BAT54-V, BAT54A-V, BAT54C-V, BAT54S-V

Vishay Semiconductors

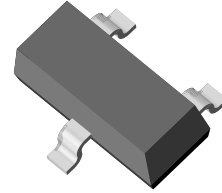
Small Signal Schottky Diodes, Single and Dual

Features

- These diodes feature very low turn-on voltage and fast switching
- These devices are protected by a PN junction guard ring against excessive voltage, such as electrostatic discharges
- AEC-Q101 qualified
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC



RoHS
COMPLIANT



Mechanical Data

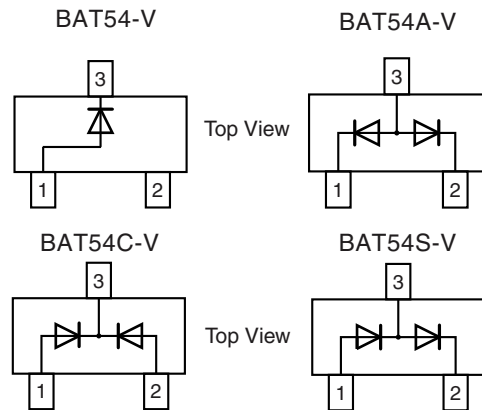
Case: SOT-23

Weight: approx. 8.8 mg

Packaging codes/options:

GS18/10K per 13" reel (8 mm tape), 10K/box

GS08/3K per 7" reel (8 mm tape), 15K/box



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Parts Table

| Part | Ordering code | Type marking | Remarks |
|----------|--------------------------------|--------------|---------------|
| BAT54-V | BAT54-V-GS18 or BAT54-V-GS08 | L4 | Tape and reel |
| BAT54A-V | BAT54A-V-GS18 or BAT54A-V-GS08 | L42 | Tape and reel |
| BAT54C-V | BAT54C-V-GS18 or BAT54C-V-GS08 | L43 | Tape and reel |
| BAT54S-V | BAT54S-V-GS18 or BAT54S-V-GS08 | L44 | Tape and reel |

Absolute Maximum Ratings

$T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified

| Parameter | Test condition | Symbol | Value | Unit |
|---------------------------------|--------------------|-----------|-------------------|------|
| Repetitive peak reverse voltage | | V_{RRM} | 30 | V |
| Forward continuous current | | I_F | 200 ¹⁾ | mA |
| Repetitive peak forward current | | I_{FRM} | 300 ¹⁾ | mA |
| Surge forward current | $t_p < 1\text{ s}$ | I_{FSM} | 600 ¹⁾ | mA |
| Power dissipation | | P_{tot} | 230 | mW |

Note

¹⁾ Device on fiberglass substrate, see layout on next page.

Thermal Characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified

| Parameter | Test condition | Symbol | Value | Unit |
|--|----------------|------------|-------------------|--------------------|
| Thermal resistance junction to ambient air | | R_{thJA} | 430 ¹⁾ | K/W |
| Junction temperature | | T_j | 125 | $^{\circ}\text{C}$ |
| Storage temperature range | | T_{stg} | - 65 to + 150 | $^{\circ}\text{C}$ |

Note

¹⁾ Device on fiberglass substrate, see layout on next page.

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Electrical Characteristics

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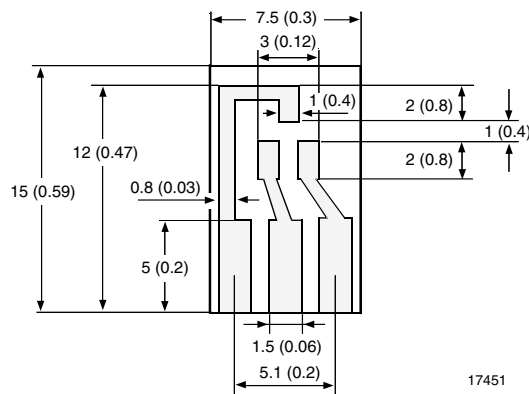
| Parameter | Test condition | Symbol | Min. | Typ. | Max. | Unit |
|---------------------------|---|------------|------|------|------|---------------|
| Reverse Breakdown voltage | $I_R = 100\text{ }\mu\text{A}$ (pulsed) | $V_{(BR)}$ | 30 | | | V |
| Leakage current | Pulse test $t_p < 300\text{ }\mu\text{s}$, $\delta < 2\%$ at $V_R = 25\text{ V}$ | I_R | | | 2 | μA |
| Forward voltage | $I_F = 0.1\text{ mA}$, $t_p < 300\text{ }\mu\text{s}$, $\delta < 2\%$ | V_F | | | 240 | mV |
| | $I_F = 1\text{ mA}$, $t_p < 300\text{ }\mu\text{s}$, $\delta < 2\%$ | V_F | | | 320 | mV |
| | $I_F = 10\text{ mA}$, $t_p < 300\text{ }\mu\text{s}$, $\delta < 2\%$ | V_F | | | 400 | mV |
| | $I_F = 30\text{ mA}$, $t_p < 300\text{ }\mu\text{s}$, $\delta < 2\%$ | V_F | | | 500 | mV |
| | $I_F = 100\text{ mA}$, $t_p < 300\text{ }\mu\text{s}$, $\delta < 2\%$ | V_F | | | 800 | mV |
| Diode capacitance | $V_R = 1\text{ V}$, $f = 1\text{ MHz}$ | C_D | | | 10 | pF |
| Reverse recovery time | $I_F = 10\text{ mA}$ to $I_R = 10\text{ mA}$, $i_R = 1\text{ mA}$, $R_L = 100\text{ }\Omega$ | t_{rr} | | | 5 | ns |

Layout for R_{thJA} test

Thickness:

Fiberglass 1.5 mm (0.059 in.)

Copper leads 0.3 mm (0.012 in.)



Typical Characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified

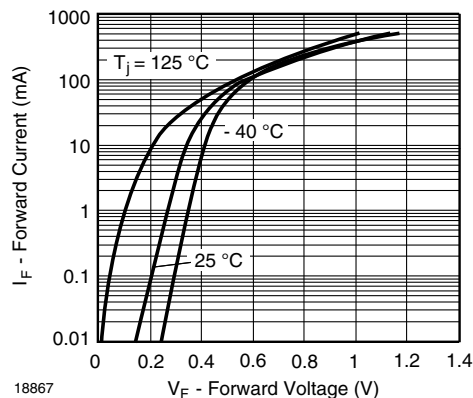


Figure 1. Typical Forward Voltage Forward Current vs. Various Temperatures

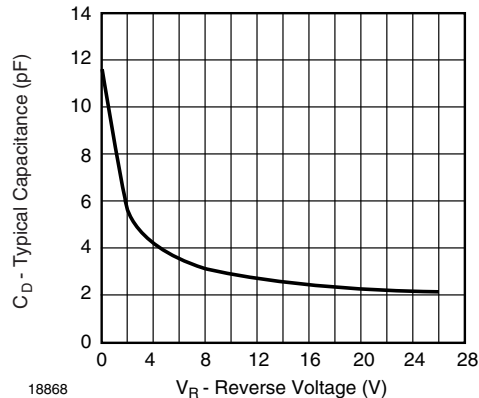


Figure 2. Diode Capacitance vs. Reverse Voltage V_R

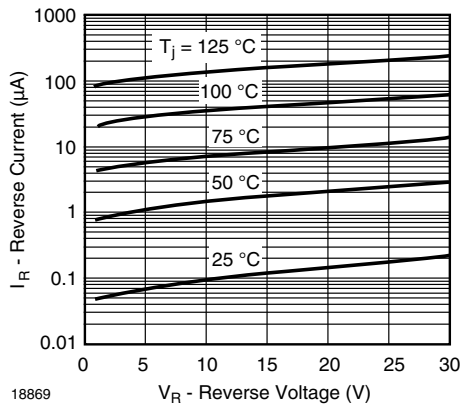
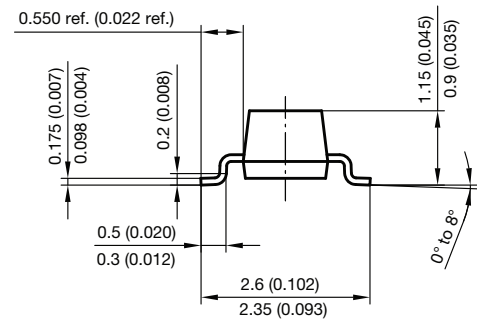
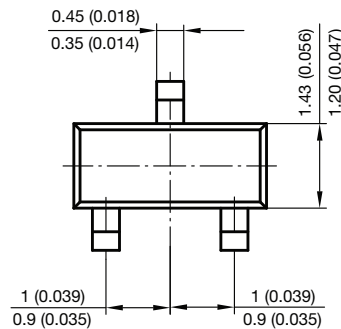
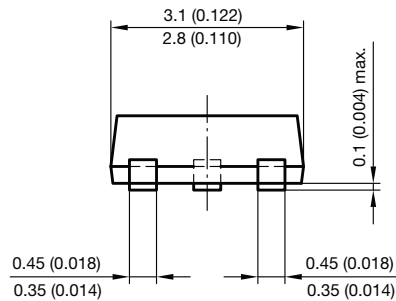
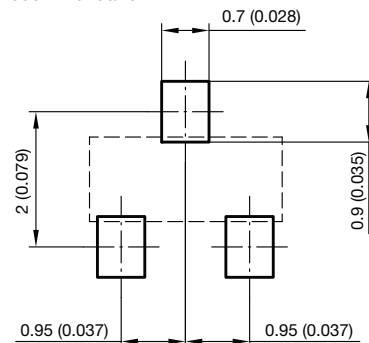


Figure 3. Typical Variation of Reverse Current vs. Various Temperatures

Package Dimensions in millimeters (inches): SOT-23



Foot print recommendation:



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