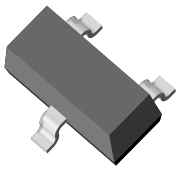
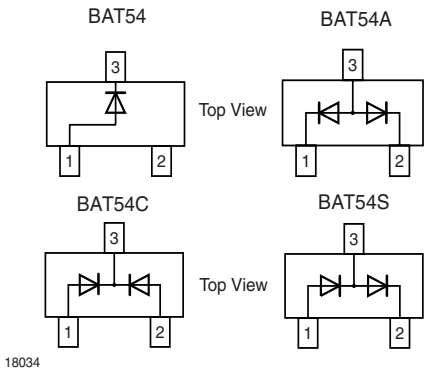
# Small Signal Schottky Diodes, Single & Dual

## 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.






## Mechanical Data

**Case:** SOT-23 Plastic case
**Weight:** approx. 8.8 mg
**Packaging Codes/Options:**
GS18 / 10 k per 13" reel (8 mm tape), 10 k/box
GS08 / 3 k per 7" reel (8 mm tape), 15 k/box

## Parts Table

| Part | Ordering code | Marking | Remarks |
|---|---|---|---|
| BAT54 | BAT54-GS18 or BAT54-GS08 | L4 | Tape and Reel |
| BAT54A | BAT54A-GS18 or BAT54A-GS08 | L42 | Tape and Reel |
| BAT54C | BAT54C-GS18 or BAT54C-GS08 | L43 | Tape and Reel |
| BAT54S | BAT54S-GS18 or BAT54S-GS08 | L44 | Tape and Reel |

## Absolute Maximum Ratings

$T_{amb}$ = 25 °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 current | $t_p$ < 1 s | $I_{FSM}$ | 600[1)] | mA |
| Power dissipation | | $P_{tot}$ | 230 | mW |

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

## Thermal Characteristics

$T_{amb}$ = 25 °C, unless otherwise specified

| Parameter | Test condition | Symbol | Value | Unit |
|---|---|---|---|---|
| Thermal resistance junction to ambiant air | | $R_{thJA}$ | 430[1)] | °C/W |
| Junction temperature | | $T_j = T_{stg}$ | - 65 to + 150 | °C |
| Storage temperature range | | $T_S$ | - 65 to + 150 | °C |

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

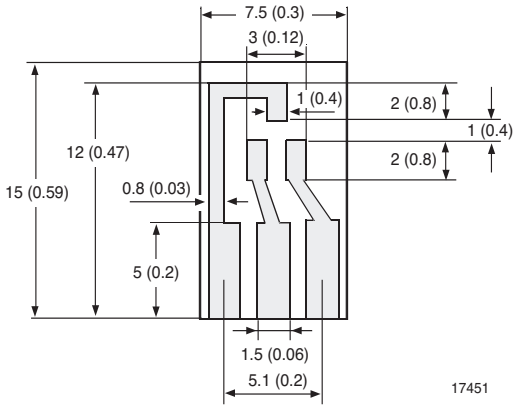
## Electrical Characteristics

$T_{amb}$ = 25 °C, unless otherwise specified

| Parameter | Test condition | Symbol | Min | Typ. | Max | Unit |
|---|---|---|---|---|---|---|
| Reverse Breakdown voltage | $I_R$ = 100 μA pulses | $V_{(BR)}$ | 30 | | | V |
| Leakage current | Pulse test $t_p$ < 300 μs, δ < 2 % at $V_R$ = 25 V | $I_R$ | | | 2 | μA |
| Forward voltage | $I_F$ = 0.1 mA, $t_p$ < 300 μs, δ < 2 % | $V_F$ | | | 240 | mV |
| | $I_F$ = 1 mA, $t_p$ < 300 μs, δ < 2 % | $V_F$ | | | 320 | mV |
| | $I_F$ = 10 mA, $t_p$ < 300 μs, δ < 2 % | $V_F$ | | | 400 | mV |
| | $I_F$ = 30 mA, $t_p$ < 300 μs, δ < 2 % | $V_F$ | | | 500 | mV |
| | $I_F$ = 100 mA, $t_p$ < 300 μs, δ < 2 % | $V_F$ | | | 1000 | mV |
| Diode capacitance | $V_R$ = 1 V, f = 1 MHz | $C_{tot}$ | | | 10 | pF |
| Reverse recovery time | $I_F$ = 10 mA through $I_R$ = 10 mA to $I_{rr}$ = 1mA, $R_L$ = 100 Ω | $t_{rr}$ | | | 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 (Tamb = 25 °C unless otherwise specified)

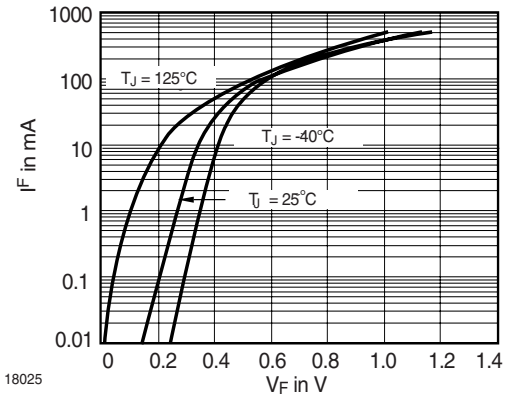



Figure 1. Typical Forward Voltage Forward Current at Various Temperatures

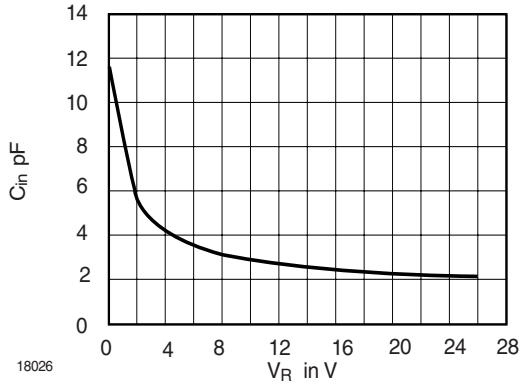



Figure 2. Typical Capacitance °C vs. Reverse Applied Voltage $V_R$

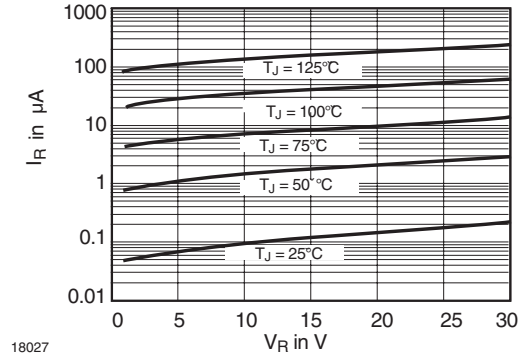
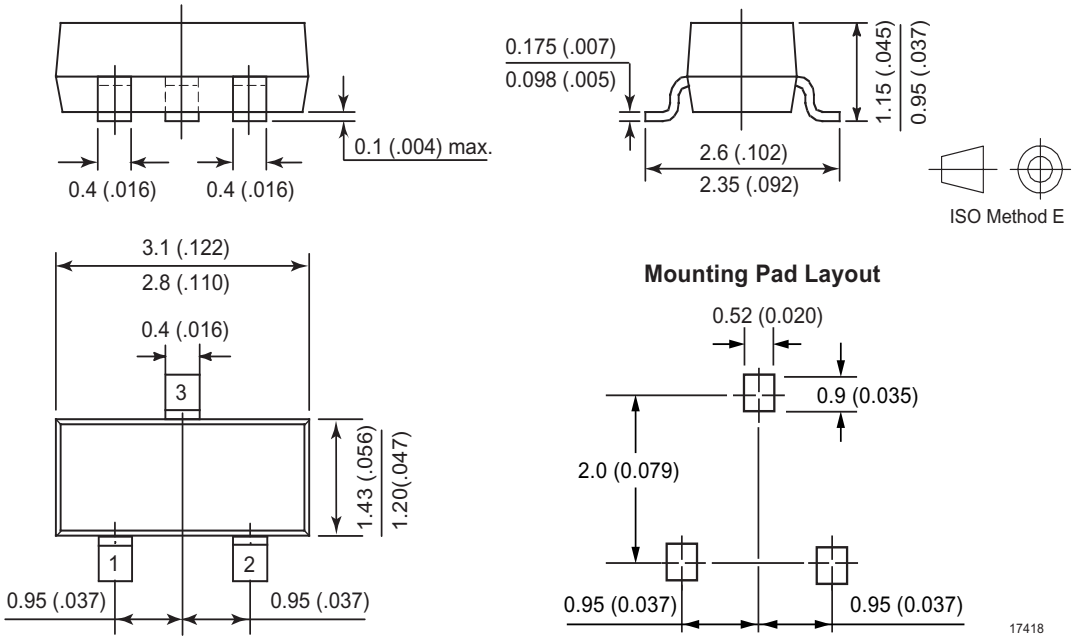



Figure 3. Typical Variation of Reverse Current at Various Temperatures

## Package Dimensions in mm (Inches)



## Ozone Depleting Substances Policy Statement

It is the policy of Vishay Semiconductor GmbH to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operatingsystems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

Vishay Semiconductor GmbH has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

Vishay Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.



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