

## Schottky Diodes

### Features

- For general purpose applications
- These diodes feature very low turn-on voltage and fast guard ring against excessive voltage, such as electrostatic discharges
- These diodes are also available in the SOD123 case with the type designations BAT42W to BAT43W and in designations LL42 to LL43.
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



94 9367

### Mechanical Data

**Case:** DO35 Glass Case

**Weight:** approx. 125 mg

**Cathode Band Color:** black

**Packaging Codes/Options:**

TR / 10 k per 13 " reel (52 mm tape), 50 k/box

TAP / 10 k per Ammo tape (52 mm tape), 50 k/box

### Parts Table

| Part  | Ordering code         | Type Marking | Remarks                  |
|-------|-----------------------|--------------|--------------------------|
| BAT42 | BAT42-TAP or BAT42-TR | BAT42        | Ammopack / Tape and Reel |
| BAT43 | BAT43-TAP or BAT43-TR | BAT43        | Ammopack / 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      | $T_{amb} = 25\text{ }^{\circ}\text{C}$                                       | $I_F$     | 200 <sup>1)</sup> | mA   |
| Repetitive peak forward current | $t_p < 1\text{ s}$ , $\delta < 0.5$ , $T_{amb} = 25\text{ }^{\circ}\text{C}$ | $I_{FRM}$ | 500 <sup>1)</sup> | mA   |
| Surge forward current           | $t_p < 10\text{ ms}$ , $T_{amb} = 25\text{ }^{\circ}\text{C}$                | $I_{FSM}$ | 4 <sup>1)</sup>   | A    |
| Power dissipation <sup>1)</sup> | $T_{amb} = 65\text{ }^{\circ}\text{C}$                                       | $P_{tot}$ | 200 <sup>1)</sup> | mW   |

<sup>1)</sup> Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature

## Thermal Characteristics

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

| Parameter                                  | Test condition | Symbol     | Value             | Unit               |
|--|----------------|------------|-------------------|--------------------|
| Thermal resistance junction to ambient air |                | $R_{thJA}$ | 300 <sup>1)</sup> | K/W                |
| Junction temperature                       |                | $T_j$      | 125               | $^{\circ}\text{C}$ |
| Ambient operating temperature range        |                | $T_{amb}$  | - 65 to + 125     | $^{\circ}\text{C}$ |
| Storage temperature range                  |                | $T_{stg}$  | - 65 to +150      | $^{\circ}\text{C}$ |

<sup>1)</sup> Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature

## Electrical Characteristics

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

| Parameter                 | Test condition  | Part  | Symbol      | Min | Typ. | Max | Unit          |
|---------------------------|---|-------|-------------|-----|------|-----|---------------|
| Reverse breakdown voltage | $I_R = 100\text{ }\mu\text{A}$ (pulsed)   |       | $V_{(BR)R}$ | 30  |      |     | V             |
| Leakage current           | $V_R = 25\text{ V}$   |       | $I_R$       |     |      | 0.5 | $\mu\text{A}$ |
|                           | $V_R = 25\text{ V}$ , $T_j = 100\text{ }^{\circ}\text{C}$   |       | $I_R$       |     |      | 100 | $\mu\text{A}$ |
| Forward voltage           | $I_F = 200\text{ mA}$   |       | $V_F$       |     |      | 1   | V             |
|                           | $I_F = 10\text{ mA}$  | BAT42 | $V_F$       |     |      | 400 | mV            |
|                           | $I_F = 50\text{ mA}$  | BAT42 | $V_F$       |     |      | 650 | mV            |
|                           | $I_F = 2\text{ mA}$   | BAT43 | $V_F$       | 260 |      | 330 | mV            |
|                           | $I_F = 15\text{ mA}$  | BAT43 | $V_F$       |     |      | 450 | mV            |
| Diode capacitance         | $V_R = 1\text{ V}$ , $f = 1\text{ MHz}$   |       | $C_D$       |     | 7    |     | pF            |
| Reverse recovery time     | $I_F = 10\text{ mA}$ , $I_R = 10\text{ mA}$ ,<br>$I_{rr} = 1\text{ mA}$ , $R_L = 100\text{ }\Omega$ |       | $t_{rr}$    |     |      | 5   | ns            |
| Detection efficiency      | $R_L = 15\text{ k}\Omega$ , $C_L = 300\text{ pF}$ ,<br>$f = 45\text{ MHz}$ , $V_{RF} = 2\text{ V}$  |       | $\eta_v$    | 80  |      |     | %             |

## Typical Characteristics

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

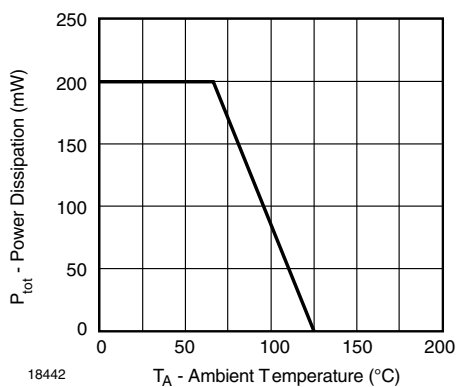


Figure 1. Admissible Power Dissipation vs. Ambient Temperature

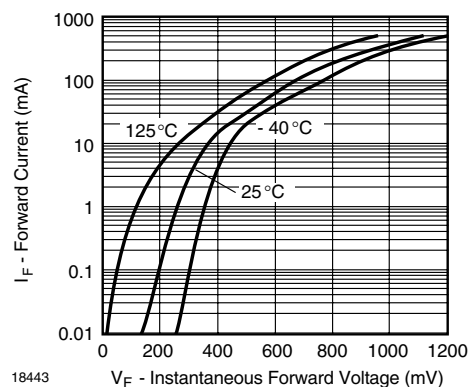


Figure 2. Typical Reverse Characteristics

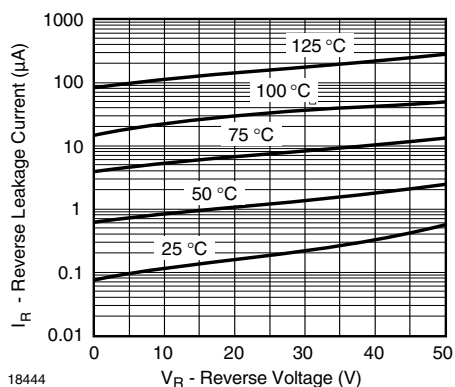


Figure 3. Typical Reverse Characteristics

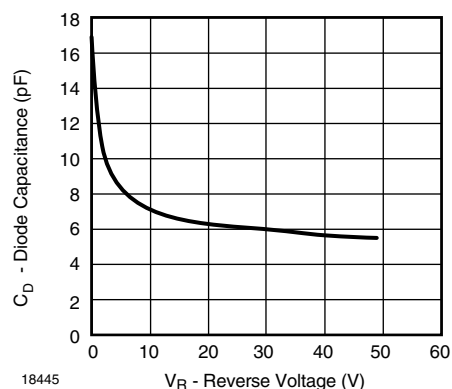
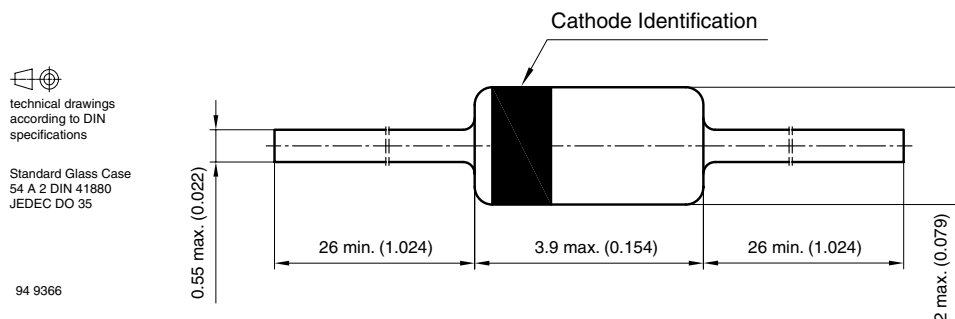


Figure 4. Typical Capacitance vs. Reverse Applied Voltage

## 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 operating systems 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.

We reserve the right to make changes to improve technical design  
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