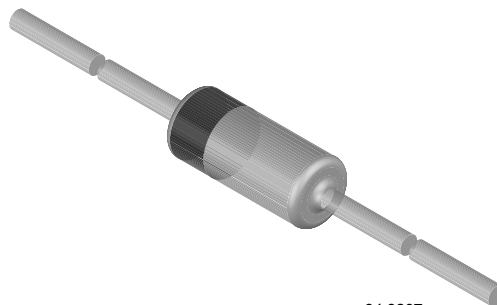


## Small Signal Schottky Diodes

### Features

- Integrated protection ring against static discharge
- Low capacitance
- Low leakage current
- Low forward voltage drop
- Very low switching time
- AEC-Q101 qualified
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



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### Applications

- General purpose and switching Schottky barrier diode
- HF-Detector
- Protection circuit
- Diode for low currents with a low supply voltage
- Small battery charger
- Power supplies
- DC/DC converter for notebooks

### Mechanical Data

**Case:** DO-35

**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 Ammopack (52 mm tape), 50 k/box

### Parts Table

| Part   | Type differentiation | Ordering code           | Type Marking | Remarks                |
|--------|----------------------|-------------------------|--------------|------------------------|
| BAT81S | $V_R = 40\text{ V}$  | BAT81S-TR or BAT81S-TAP | BAT81S       | Tape and Reel/Ammopack |
| BAT82S | $V_R = 50\text{ V}$  | BAT82S-TR or BAT82S-TAP | BAT82S       | Tape and Reel/Ammopack |
| BAT83S | $V_R = 60\text{ V}$  | BAT83S-TR or BAT83S-TAP | BAT83S       | Tape and Reel/Ammopack |

### Absolute Maximum Ratings

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

| Parameter                       | Test condition          | Part   | Symbol    | Value | Unit |
|---------------------------------|-------------------------|--------|-----------|-------|------|
| Reverse voltage                 |                         | BAT81S | $V_R$     | 40    | V    |
|                                 |                         | BAT82S | $V_R$     | 50    | V    |
|                                 |                         | BAT83S | $V_R$     | 60    | V    |
| Forward continuous current      |                         |        | $I_F$     | 30    | mA   |
| Peak forward surge current      | $t_p \leq 10\text{ ms}$ |        | $I_{FSM}$ | 500   | mA   |
| Repetitive peak forward current | $t_p \leq 1\text{ s}$   |        | $I_{FRM}$ | 150   | mA   |

### Thermal Characteristics

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

| Parameter                                  | Test condition                              | Symbol     | Value         | Unit               |
|--|---|------------|---------------|--------------------|
| Thermal resistance junction to ambient air | $l = 4\text{ mm}$ , $T_L = \text{constant}$ | $R_{thJA}$ | 320           | K/W                |
| Junction temperature                       |   | $T_j$      | 125           | $^{\circ}\text{C}$ |
| Storage temperature range                  |   | $T_{stg}$  | - 65 to + 150 | $^{\circ}\text{C}$ |

### Electrical Characteristics

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

| Parameter         | Test condition                          | Symbol | Min. | Typ. | Max. | Unit |
|-------------------|---|--------|------|------|------|------|
| Forward voltage   | $I_F = 0.1\text{ mA}$                   | $V_F$  |      |      | 330  | mV   |
|                   | $I_F = 1\text{ mA}$                     | $V_F$  |      |      | 410  | mV   |
|                   | $I_F = 15\text{ mA}$                    | $V_F$  |      |      | 1000 | mV   |
| Reverse current   | $V_R = V_{Rmax}$                        | $I_R$  |      |      | 200  | nA   |
| Diode capacitance | $V_R = 1\text{ V}$ , $f = 1\text{ MHz}$ | $C_D$  |      |      | 1.6  | pF   |

### Typical Characteristics

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

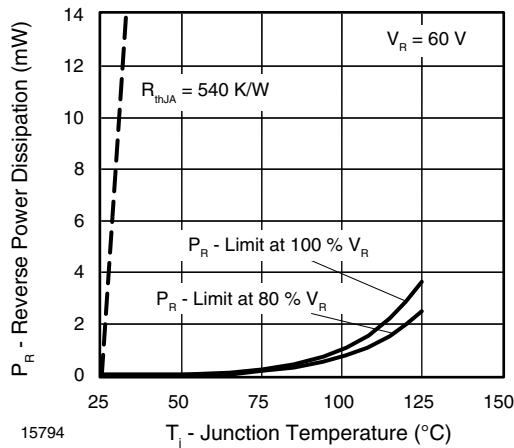


Figure 1. Max. Reverse Power Dissipation vs. Junction Temperature

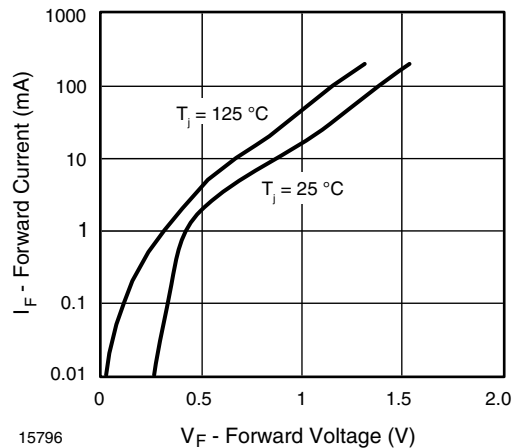


Figure 3. Forward Current vs. Forward Voltage

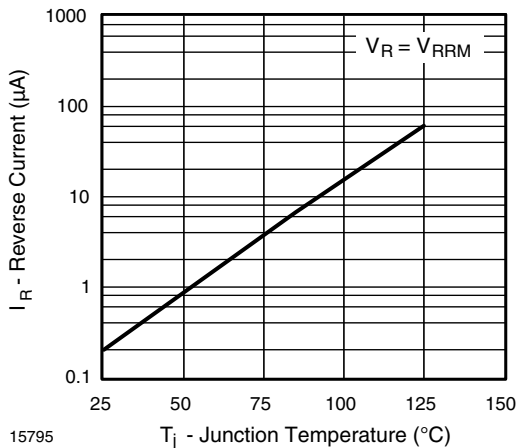


Figure 2. Reverse Current vs. Junction Temperature

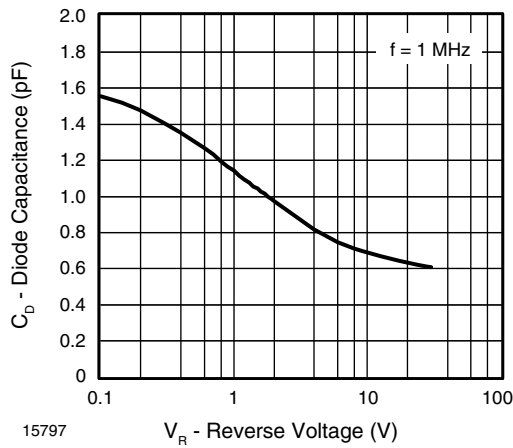
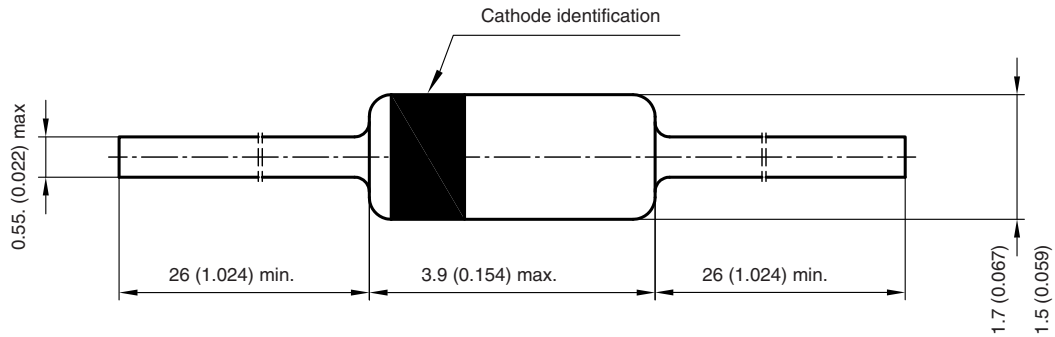
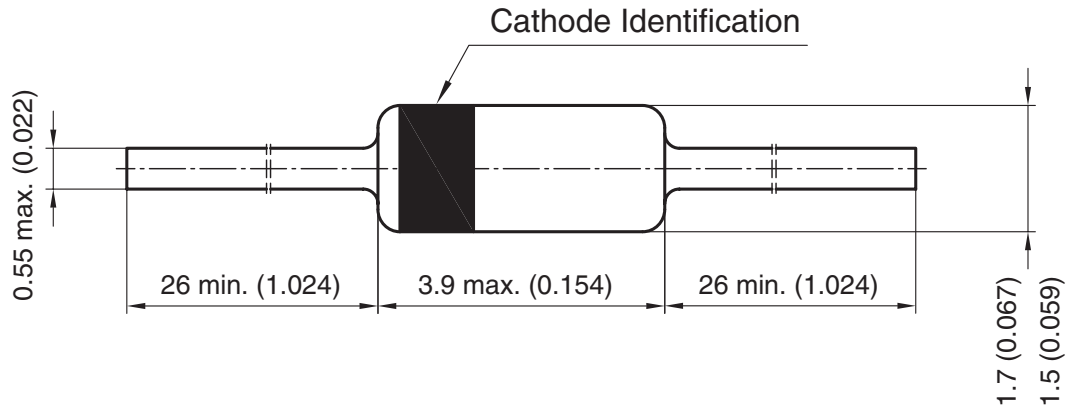


Figure 4. Diode Capacitance vs. Reverse Voltage

**Package Dimensions** in millimeters (inches): **DO-35**



Rev. 6 - Date: 29. January 2007  
 Document no.: 6.560-5004.02-4  
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**DO35****Package Dimensions in mm (Inches)**

Rev. 6 - Date: 29. January 2007

Document no.: 6.560-5004.02-4

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### 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  
and may do so without further notice.

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