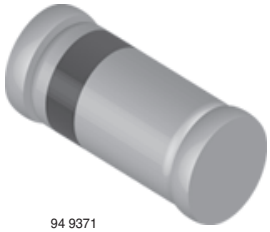
# Small Signal Schottky Diode

## Features

- For general purpose applications
- This diode features low turn-on voltage. The devices are protected by a PN junction guard ring against excessive voltage, such as electrostatic discharges.
- Metal-on-silicon Schottky barrier device which is protected by a PN junction guard ring.
- The low forward voltage drop and fast switching make it ideal for protection of MOS devices, steering, biasing and coupling diodes for fast switching and low logic level applications
- This diode is also available in a DO35 case with type designation BAT86.
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC




## Applications

- Applications where a very low forward voltage is required

## Mechanical Data

**Case:** MiniMELF Glass case SOD80
**Weight:** approx. 31 mg
**Packaging Codes/Options:**
GS18 / 10 k per 13" reel (8 mm tape), 10 k/box
GS08 / 2.5 k per 7" reel (8 mm tape), 12.5 k/box

## Parts Table

| Part | Ordering code | Marking | Remarks |
|---|---|---|---|
| BAS86 | BAS86-GS18 or BAS86-GS08 | | Tape and Reel |

## Absolute Maximum Ratings

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

| Parameter | Test condition | Symbol | Value | Unit |
|---|---|---|---|---|
| Continuous reverse voltage | | $V_R$ | 50 | V |
| Forward continuous current | $T_{amb}$ = 25 °C | $I_F$ | 200[1)] | mA |
| Repetitive peak forward current | $t_p$ < 1 s, $T_{amb}$ = 25 °C, $\nu \leq 0.5$ | $I_{FRM}$ | 500[1)] | mA |
| Power dissipation[1)] | $T_{amb}$ = 25 °C | $P_{tot}$ | 200[1)] | mW |

[1)] Valid provided that electrodes are kept at ambient temperature

## Thermal Characteristics

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

| Parameter | Test condition | Symbol | Value | Unit |
|---|---|---|---|---|
| Thermal resistance junction to ambient air | | $R_{thJA}$ | 300[1)] | K/W |
| Junction temperature | | $T_j$ | 125 | °C |
| Ambient operating temperature range | | $T_{amb}$ | - 65 to + 125 | °C |
| Storage temperature range | | $T_S$ | - 65 to +150 | °C |

[1)] Valid provided that electrodes are kept at ambient temperature

## Electrical Characteristics

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

| Parameter | Test condition | Symbol | Min | Typ. | Max | Unit |
|---|---|---|---|---|---|---|
| Reverse breakdown voltage | $I_R$ = 10 µA (pulsed) | $V_{(BR)}$ | 50 | | | V |
| Leakage current | $V_R$ = 40 V | $I_R$ | | | 5 | µA |
| Forward voltage | Pulse test $t_p$ < 300 µs, $I_F$ = 0.1 mA, $\delta$ < 2 % | $V_F$ | | 200 | 300 | mV |
| | Pulse test $t_p$ < 300 µs, $I_F$ = 1 mA, $\delta$ < 2 % | $V_F$ | | 275 | 380 | mV |
| | Pulse test $t_p$ < 300 µs, $I_F$ = 10 mA, $\delta$ < 2 % | $V_F$ | | 365 | 450 | mV |
| | Pulse test $t_p$ < 300 µs, $I_F$ = 30 mA, $\delta$ < 2 % | $V_F$ | | 460 | 600 | mV |
| | Pulse test $t_p$ < 300 µs, $I_F$ = 100 mA, $\delta$ < 2 % | $V_F$ | | 700 | 900 | mV |
| Diode capacitance | $V_R$ = 1 V, f = 1 MHz | $C_{tot}$ | | | 8 | pF |
| Reverse recovery time | $I_F$ = 10 mA, $I_R$ = 10 mA, $I_{rr}$ = 1 mA, | $t_{rr}$ | | | 5 | ns |

## Typical Characteristics

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

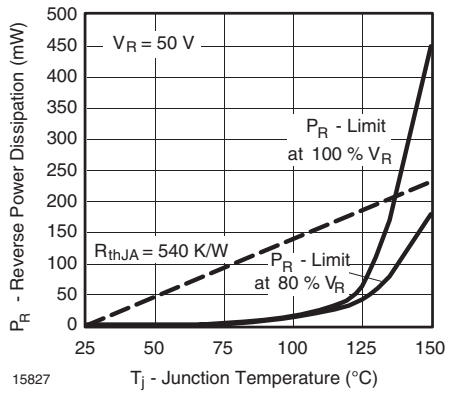



Figure 1. Max. Reverse Power Dissipation vs. Junction Temperature

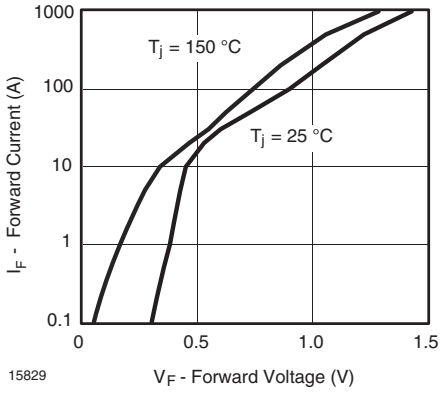



Figure 3. Forward Current vs. Forward Voltage

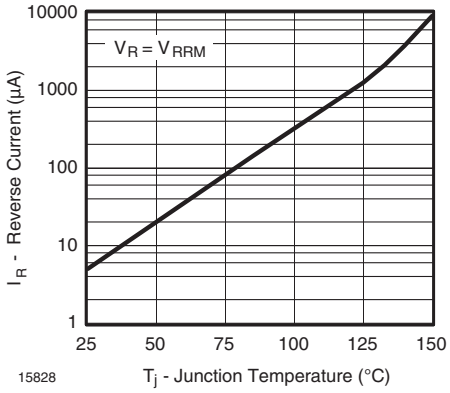



Figure 2. Reverse Current vs. Junction Temperature

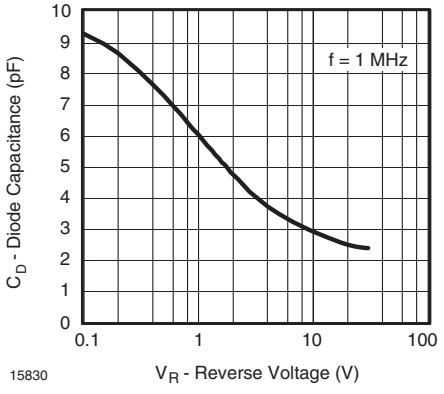
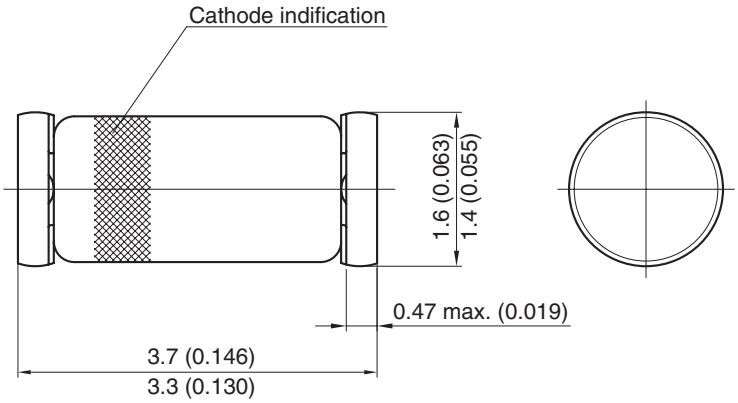
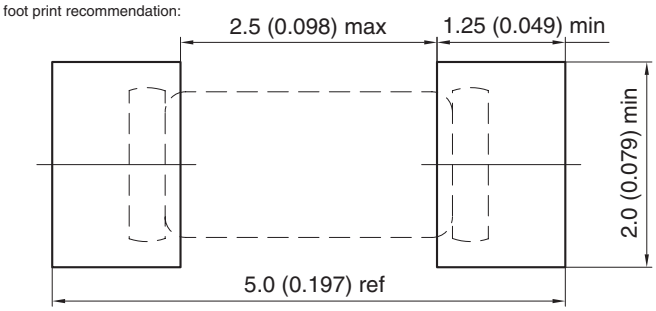



Figure 4. Diode Capacitance vs. Reverse Voltage

## Package Dimensions in mm (Inches)




Document no.: 6.560-5005.01-4
Rev. 7 - Date: 07.February.2005
96 12070

## Ozone Depleting Substances Policy Statement

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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.



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