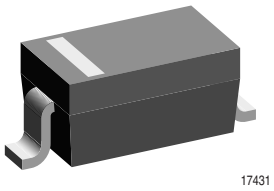
Small Signal Schottky Diodes

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
- These diodes are also available in the SOD123 case with the type designations BAT42W to BAT43W and in designations LL42 to LL43
- For general purpose applications
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



Mechanical Data

Case: SOD123 Plastic case

Weight: approx. 9.3 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	Type Marking	Remarks
BAT42W	BAT42W-GS18 or BAT42W-GS08	L2	Tape and Reel
BAT43W	BAT43W-GS18 or BAT43W-GS08	L3	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	T_{amb} = 25 °C	I_F	200[1)]	mA
Repetitive peak forward current	t_p < 1 s, δ < 0.5, T_{amb} = 25 °C	I_{FRM}	500[1)]	mA
Surge forward current	t_p < 10 ms, T_{amb} = 25 °C	I_{FSM}	4[1)]	A
Power dissipation[1)]	T_{amb} = 65 °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}	- 55 to + 125	°C
Storage temperature range		T_{stg}	- 55 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	Part	Symbol	Min	Typ.	Max	Unit
Reverse breakdown voltage	I_R = 100 µA (pulsed)		$V_{(BR)R}$	30			V
Leakage current[1)]	V_R = 25 V		I_R			0.5	µA
	V_R = 25 V, T_j = 100 °C		I_R			100	µA
Forward voltage[1)]	I_F = 200 mA		V_F			1000	mV
	I_F = 10 mA	BAT42W	V_F			400	mV
	I_F = 50 mA	BAT42W	V_F			650	mV
	I_F = 2 mA	BAT43W	V_F	260		330	mV
	I_F = 15 mA	BAT43W	V_F			450	mV
Diode capacitance	V_R = 1 V, f = 1 MHz		C_D		7		pF
Reverse recovery time	I_F = 10 mA, I_R = 10 mA, I_{rr} = 1 mA, R_L = 100 Ω		t_{rr}			5	ns
Detection efficieny	R_L = 15 kΩ, C_L = 300 pF, f = 45 MHz, V_{RF} = 2 V		η_v	80			%

1) Pulse test t_p < 300 µs θ < 2 %

Typical Characteristics

T_{amb} = 25 °C unless otherwise specified

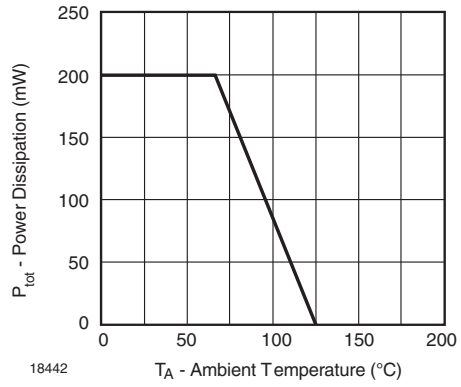


Figure 1. Admissible Power Dissipation vs. Ambient Temperature

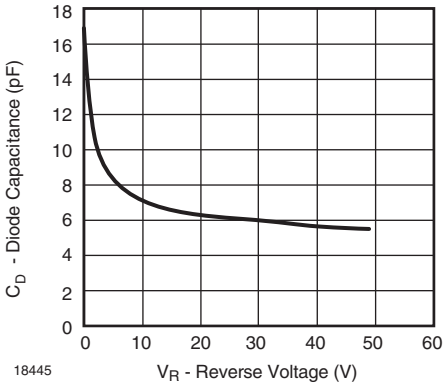


Figure 4. Typical Capacitance vs. Reverse Applied Voltage

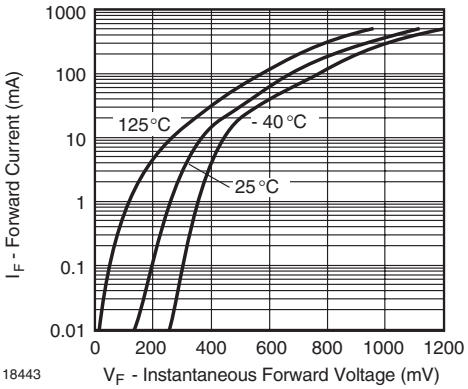


Figure 2. Typical Reverse Characteristics

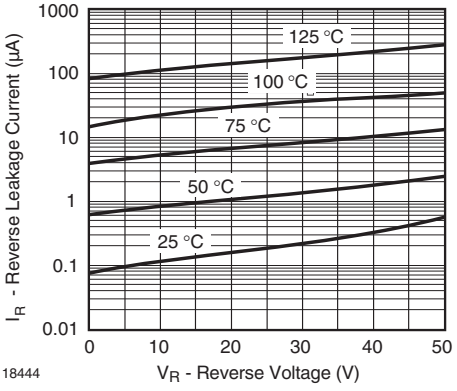
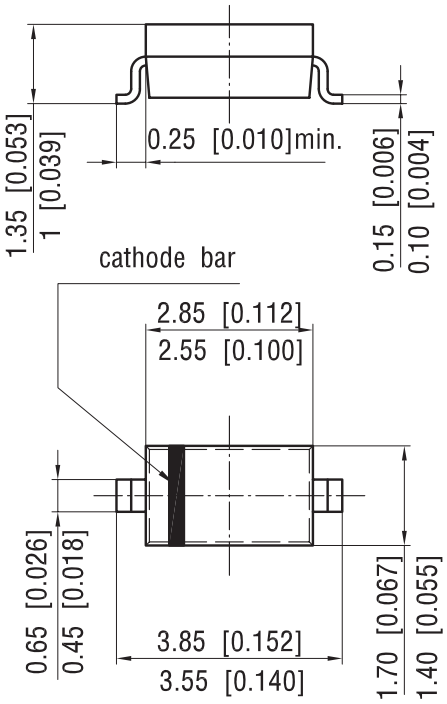
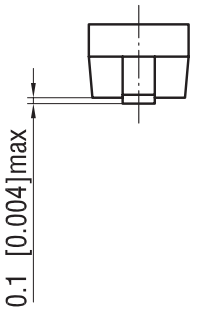


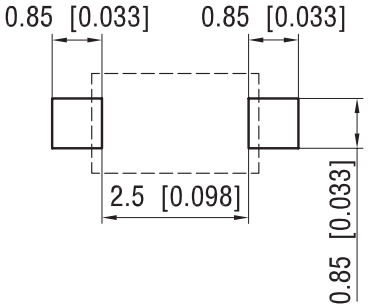
Figure 3. Typical Reverse Characteristics

Package Dimensions in mm (Inches)





foot print recommendation:



Document no.:S8-V-3910.01-001 (4)
Rev. 03 - Date: 08.November.2004
17432

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.

Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany

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