

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 DO35 case with the type designations BAT42 to BAT43 and in MiniMELF SOD80 case with the type 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



17431

Mechanical Data

Case: SOD123 Plastic case

Weight: approx. 10.3 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-V	BAT42W-V-GS18 or BAT42W-V-GS08	L2	Tape and Reel
BAT43W-V	BAT43W-V-GS18 or BAT43W-V-GS08	L3	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 ¹⁾	mA
Repetitive peak forward current	$t_p < 1\text{ s}$, $\delta < 0.5$, $T_{amb} = 25\text{ }^{\circ}\text{C}$	I_{FRM}	500 ¹⁾	mA
Surge forward current	$t_p < 10\text{ ms}$, $T_{amb} = 25\text{ }^{\circ}\text{C}$	I_{FSM}	4 ¹⁾	A
Power dissipation ¹⁾	$T_{amb} = 65\text{ }^{\circ}\text{C}$	P_{tot}	200 ¹⁾	mW

¹⁾ Valid provided that electrodes 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 ¹⁾	K/W
Junction temperature		T_j	125	$^{\circ}\text{C}$
Ambient operating temperature range		T_{amb}	- 55 to + 125	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	- 55 to + 150	$^{\circ}\text{C}$

¹⁾ Valid provided that electrodes 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)		$V_{(BR)}$	30			V
Leakage current ¹⁾	$V_R = 25\text{ V}$		I_R			0.5	μA
	$V_R = 25\text{ V}, T_j = 100\text{ }^{\circ}\text{C}$		I_R			100	μA
Forward voltage ¹⁾	$I_F = 200\text{ mA}$		V_F			1000	mV
	$I_F = 10\text{ mA}$	BAT42W-V	V_F			400	mV
	$I_F = 50\text{ mA}$	BAT42W-V	V_F			650	mV
	$I_F = 2\text{ mA}$	BAT43W-V	V_F	260		330	mV
	$I_F = 15\text{ mA}$	BAT43W-V	V_F			450	mV
Diode capacitance	$V_R = 1\text{ V}, f = 1\text{ MHz}$		C_D		7		pF
Reverse recovery time	$I_F = 10\text{ mA}, I_R = 10\text{ mA},$ $i_R = 1\text{ mA}, R_L = 100\text{ }\Omega$		t_{rr}			5	ns
Rectification efficiency	$R_L = 15\text{ k}\Omega, C_L = 300\text{ pF},$ $f = 45\text{ MHz}, V_{RF} = 2\text{ V}$		η_v	80			%

¹⁾ Pulse test $t_p < 300\text{ }\mu\text{s}, t_p/T < 0.02$

Typical Characteristics

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

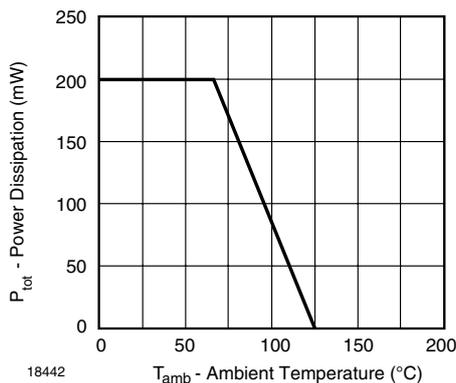


Figure 1. Admissible Power Dissipation vs. Ambient Temperature

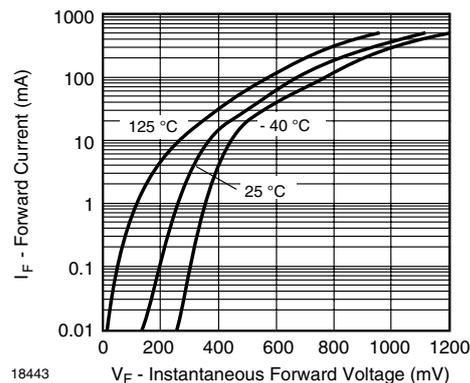


Figure 2. Typical Reverse Characteristics

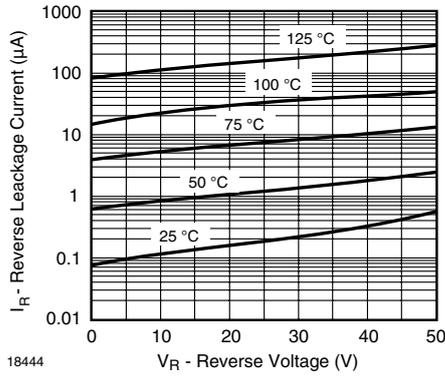


Figure 3. Typical Reverse Characteristics

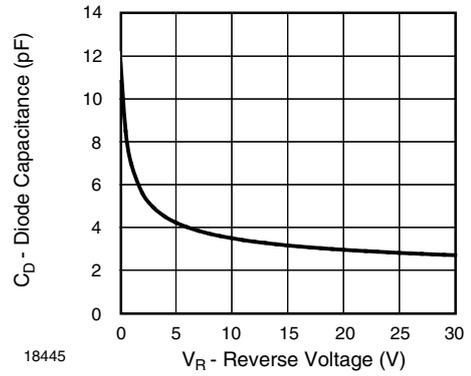
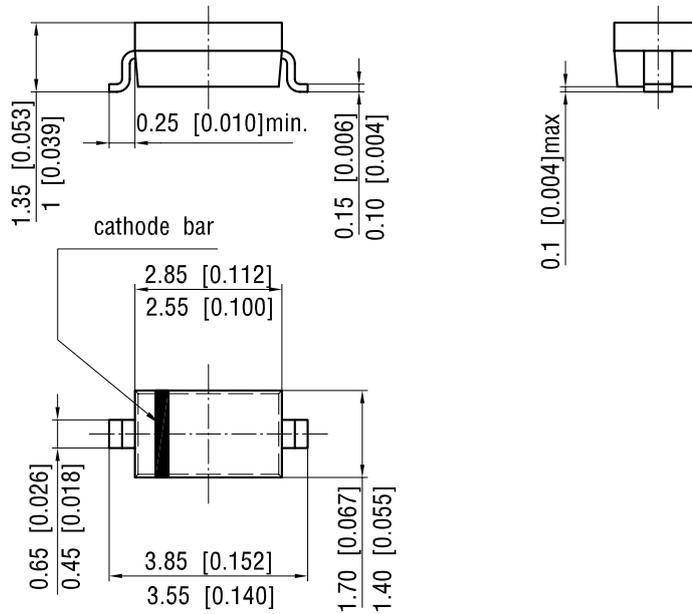
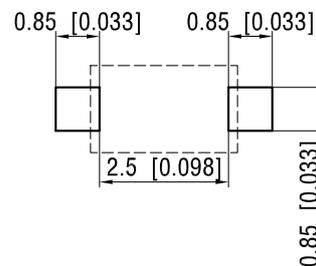


Figure 4. Typical Capacitance vs. Reverse Voltage

Package Dimensions in millimeters (inches): SOD123



foot print recommendation:



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 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.

We reserve the right to make changes to improve technical design
and may do so without further notice.

Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer. Should the buyer use Vishay Semiconductors products for any unintended or unauthorized application, the buyer shall indemnify Vishay Semiconductors against all claims, costs, damages, and expenses, arising out of, directly or indirectly, any claim of personal damage, injury or death associated with such unintended or unauthorized use.

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