

Vishay Semiconductors

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
- e3 RoHS



- For general purpose applications
- AEC-Q101 qualified
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC



Mechanical Data

Case: SOD-123

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 °C, unless otherwise specified

Parameter	Test condition	Symbol	Value	Unit	
Repetitive peak reverse voltage		V _{RRM}	30	V	
Forward continuous current		I _F	200 ¹⁾	mA	
Repetitive peak forward current	$t_p < 1 \text{ s, } \delta < 0.5$	I _{FRM}	500 ¹⁾	mA	
Surge forward current	t _p < 10 ms	I _{FSM}	4 ¹⁾	Α	
Power dissipation ¹⁾	T _{amb} = 65 °C	P _{tot}	200 ¹⁾	mW	

¹⁾ Valid provided that electrodes are kept at ambient temperature

BAT42W-V, BAT43W-V

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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		Tj	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	Тур.	Max	Unit
Reverse breakdown voltage	$I_R = 100 \mu A \text{ (pulsed)}$		V _(BR)	30			V
Leakage current ¹⁾	V _R = 25 V		I _R			0.5	μΑ
	V _R = 25 V, T _j = 100 °C		I _R			100	μΑ
	I _F = 200 mA		V _F			1000	mV
	I _F = 10 mA	BAT42W-V	V _F			400	mV
Forward voltage ¹⁾	I _F = 50 mA	BAT42W-V	V _F			650	mV
	I _F = 2 mA	BAT43W-V	V _F	260		330	mV
	I _F = 15 mA	BAT43W-V	V _F			450	mV
Diode capacitance	V _R = 1 V, f = 1 MHz		C _D		7		pF
Reverse recovery time	$I_F = 10 \text{ mA}, I_R = 10 \text{ mA},$ $I_R = 1 \text{ mA}, R_L = 100 \Omega$		t _{rr}			5	ns
Rectification efficieny	$R_L = 15 \text{ k}\Omega, C_L = 300 \text{ pF},$ $f = 45 \text{ MHz}, V_{RF} = 2 \text{ V}$		η_{v}	80			%

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

Typical Characteristics

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

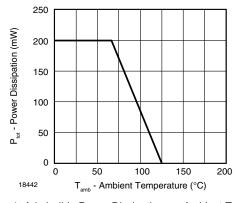


Figure 1. Admissible Power Dissipation vs. Ambient Temperature

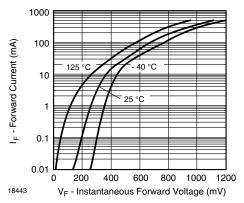


Figure 2. Typical Forward Characteristics



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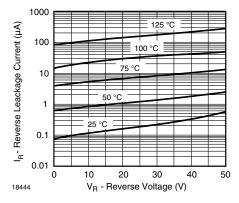


Figure 3. Typical Reverse Characteristics

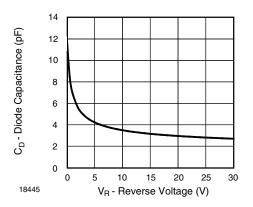
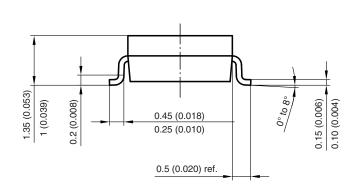
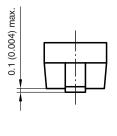


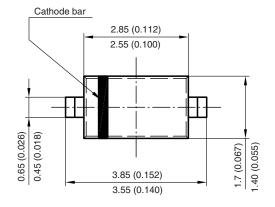
Figure 4. Typical Capacitance vs. Reverse Voltage

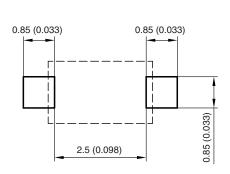
Package Dimensions in millimeters (inches): SOD-123





Mounting Pad Layout





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