

## Vishay Semiconductors

# **Small Signal Schottky Diode**



#### **MECHANICAL DATA**

Case: SOD-123

Weight: approx. 10.3 mg Packaging codes/options:

18/10K per 13" reel (8 mm tape), 10K/box 08/3K per 7" reel (8 mm tape), 15K/box

#### **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





- For general purpose applications
- AEC-Q101 qualified
- Base P/N-E3 RoHS-compliant, commercial grade
- Base P/N-HE3 RoHS-compliant, AEC-Q101 qualified
- · Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

PARTS TABLE					
PART	ORDERING CODE	INTERNAL CONSTRUCTION	TYPE MARKING	REMARKS	
BAT42W	BAT42W-E3-08 or BAT42W-E3-18	Cinale diede	L2		
	BAT42W-HE3-08 or BAT42W-HE3-18	- Single diode		Topo and roal	
BAT43W	BAT43W-E3-08 or BAT43W-E3-18	Cingle diede	L3	Tape and reel	
	BAT43W-HE3-08 or BAT43W-HE3-18	- Single diode	LS		

<b>ABSOLUTE MAXIMUM RATINGS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION SYMBO		VALUE	UNIT	
Repetitive peak reverse voltage		V <sub>RRM</sub>	30	V	
Forward continuous current (1)		I <sub>F</sub>	200	mA	
Repetitive peak forward current (1)	$t_p < 1 \text{ s, } \delta < 0.5$	I <sub>FRM</sub>	500	mA	
Surge forward current (1)	t <sub>p</sub> < 10 ms	I <sub>FSM</sub>	4	А	
Power dissipation (1)	T <sub>amb</sub> = 65 °C	P <sub>tot</sub>	200	mW	

#### Note

<sup>(1)</sup> Valid provided that electrodes are kept at ambient temperature

THERMAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Thermal resistance junction to ambient air (1)		R <sub>thJA</sub>	300	K/W	
Junction temperature		Tj	125	°C	
Operating temperature range		T <sub>op</sub>	- 55 to + 125	°C	
Storage temperature range		T <sub>stg</sub>	- 55 to + 150	°C	

#### Note

<sup>(1)</sup> Valid provided that electrodes are kept at ambient temperature



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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Reverse breakdown voltage	I <sub>R</sub> = 100 μA (pulsed)		V <sub>(BR)</sub>	30			V
Leakage current (1)	V <sub>R</sub> = 25 V		I <sub>R</sub>			0.5	μA
Leakage current (**)	V <sub>R</sub> = 25 V, T <sub>j</sub> = 100 °C		I <sub>R</sub>			100	μA
	I <sub>F</sub> = 200 mA		V <sub>F</sub>			1000	mV
	I <sub>F</sub> = 10 mA	BAT42W	V <sub>F</sub>			400	mV
Forward voltage (1)	I <sub>F</sub> = 50 mA	BAT42W	V <sub>F</sub>			650	mV
	I <sub>F</sub> = 2 mA	BAT43W	V <sub>F</sub>	260		330	mV
	I <sub>F</sub> = 15 mA	BAT43W	V <sub>F</sub>			450	mV
Diode capacitance	V <sub>R</sub> = 1 V, f = 1 MHz		C <sub>D</sub>		7		pF
Reverse recovery time	$I_F$ = 10 mA, $I_R$ = 10 mA, $I_R$ = 1 mA, $R_L$ = 100 $\Omega$		t <sub>rr</sub>			5	ns

#### Note

### TYPICAL CHARACTERISTICS (T<sub>amb</sub> = 25 °C, unless otherwise specified)

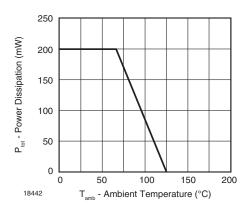


Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature

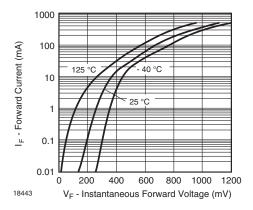


Fig. 2 - Typical Forward Characteristics

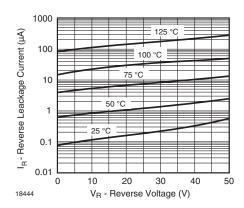


Fig. 3 - Typical Reverse Characteristics

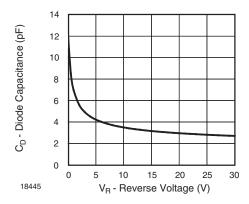


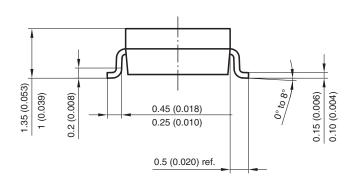
Fig. 4 - Typical Capacitance vs. Reverse Voltage

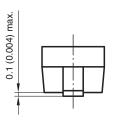
 $<sup>^{(1)}</sup>$  Pulse test;  $t_p \leq 300~\mu s,~t_p/T < 0.02$ 



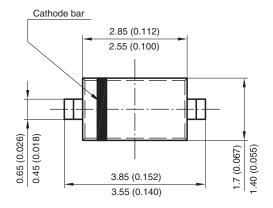
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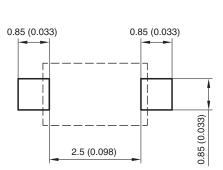
### PACKAGE DIMENSIONS in millimeters (inches): SOD-123





Mounting Pad Layout





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