



## Small Signal Schottky Diode



### DESIGN SUPPORT TOOLS

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### 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 available
- 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](http://www.vishay.com/doc?99912)



RoHS COMPLIANT

PARTS TABLE				
PART	ORDERING CODE	CIRCUIT CONFIGURATION	TYPE MARKING	REMARKS
BAT42W	BAT42W-E3-08 or BAT42W-E3-18	Single	L2	Tape and reel
	BAT42W-HE3-08 or BAT42W-HE3-18			
BAT43W	BAT43W-E3-08 or BAT43W-E3-18	Single	L3	
	BAT43W-HE3-08 or BAT43W-HE3-18			

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 <sup>(1)</sup>		$I_F$	200	mA
Repetitive peak forward current <sup>(1)</sup>	$t_p < 1\text{ s}, \delta < 0.5$	$I_{FRM}$	500	mA
Surge forward current <sup>(1)</sup>	$t_p < 10\text{ ms}$	$I_{FSM}$	4	A
Power dissipation <sup>(1)</sup>	$T_{amb} = 65\text{ }^{\circ}\text{C}$	$P_{tot}$	200	mW

#### Note

<sup>(1)</sup> 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 <sup>(1)</sup>		$R_{thJA}$	300	K/W
Junction temperature		$T_j$	125	$^{\circ}\text{C}$
Operating temperature range		$T_{op}$	-55 to +125	$^{\circ}\text{C}$
Storage temperature range		$T_{stg}$	-55 to +150	$^{\circ}\text{C}$

#### Note

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



ELECTRICAL CHARACTERISTICS (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
	V <sub>R</sub> = 25 V, T <sub>j</sub> = 100 °C		I <sub>R</sub>			100	μA
Forward voltage (1)	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
	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 <sub>F</sub> = 10 mA, I <sub>R</sub> = 10 mA, i <sub>R</sub> = 1 mA, R <sub>L</sub> = 100 Ω		t <sub>rr</sub>			5	ns

**Note**

(1) Pulse test; t<sub>p</sub> ≤ 300 μs, t<sub>p</sub>/T < 0.02

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

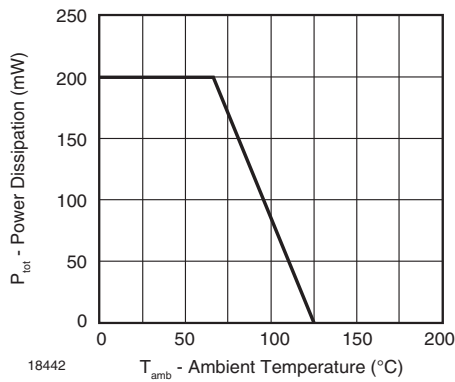


Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature

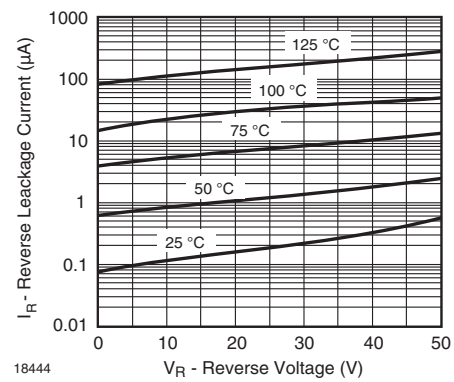


Fig. 3 - Typical Reverse Characteristics

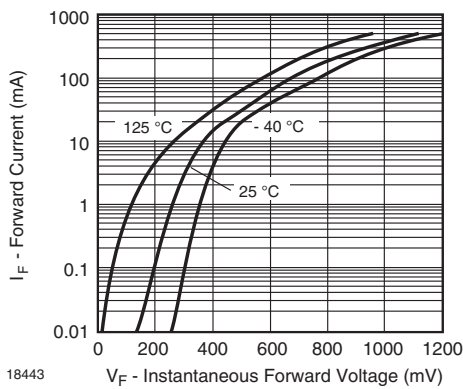


Fig. 2 - Typical Forward Characteristics

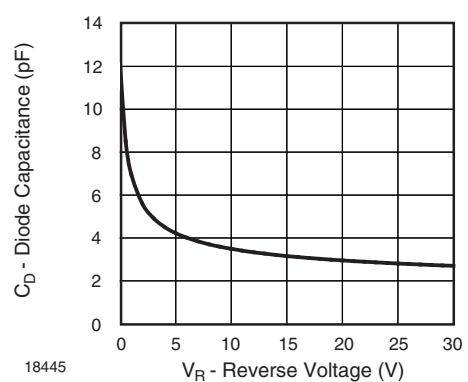
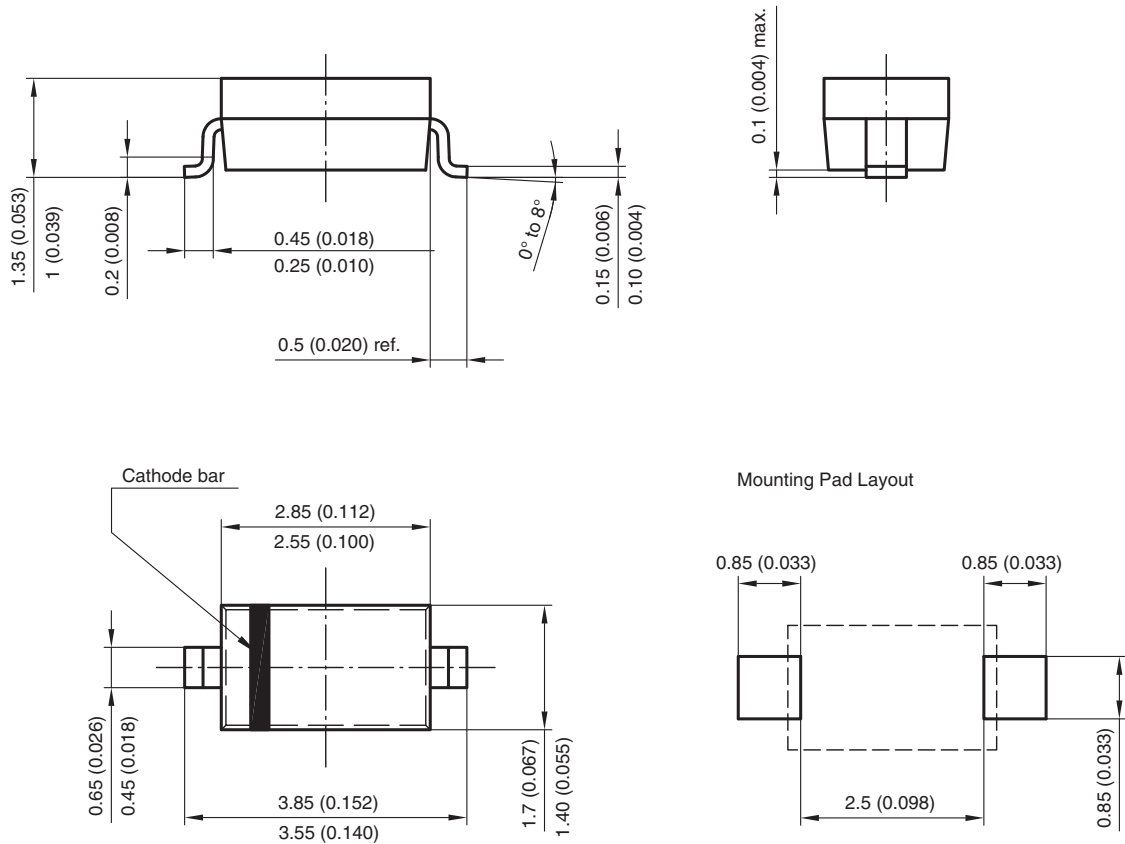


Fig. 4 - Typical Capacitance vs. Reverse Voltage



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



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