



## 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



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , 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 <sup>(1)</sup>	$V_R = 25\text{ V}$		$I_R$			0.5	$\mu\text{A}$
	$V_R = 25\text{ V}, T_j = 100\text{ }^{\circ}\text{C}$		$I_R$			100	$\mu\text{A}$
Forward voltage <sup>(1)</sup>	$I_F = 200\text{ mA}$		$V_F$			1000	mV
	$I_F = 10\text{ mA}$	BAT42W	$V_F$			400	mV
	$I_F = 50\text{ mA}$	BAT42W	$V_F$			650	mV
	$I_F = 2\text{ mA}$	BAT43W	$V_F$	260		330	mV
	$I_F = 15\text{ mA}$	BAT43W	$V_F$			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

**Note**

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

**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

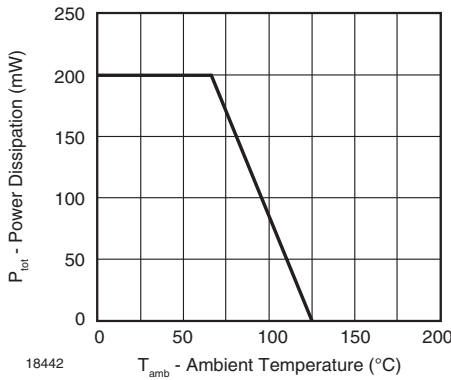


Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature

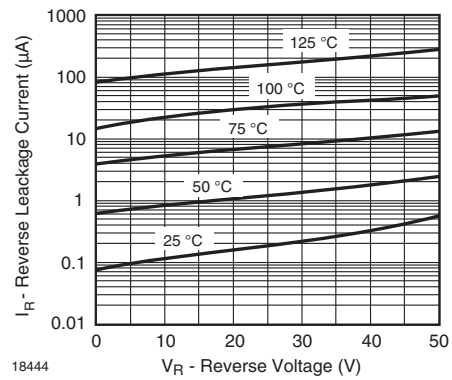


Fig. 3 - Typical Reverse Characteristics

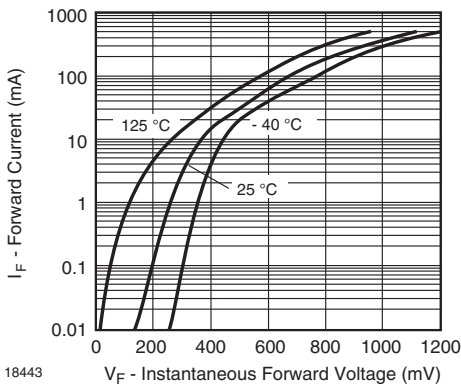


Fig. 2 - Typical Forward Characteristics

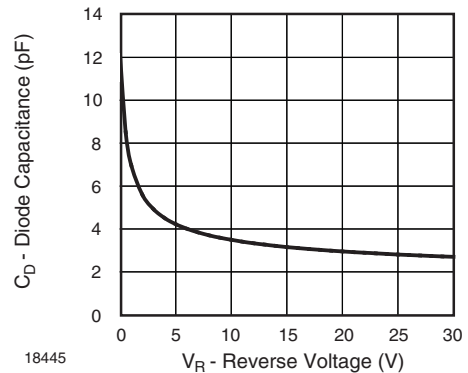
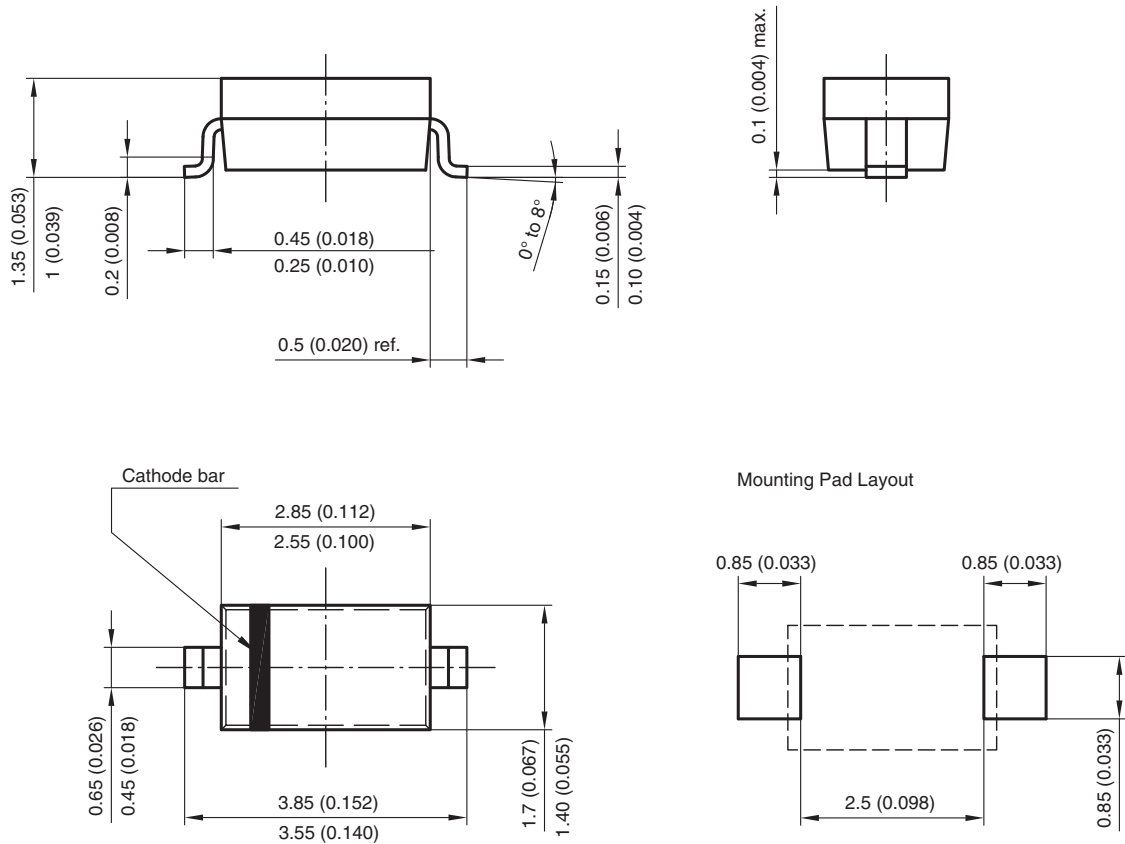


Fig. 4 - Typical Capacitance vs. Reverse Voltage



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



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