

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



**RoHS**  
COMPLIANT

PARTS TABLE				
PART	ORDERING CODE	INTERNAL CONSTRUCTION	TYPE MARKING	REMARKS
BAT54W	BAT54W-E3-08 or BAT54W-E3-18	Single diode	L4	Tape and reel
	BAT54W-HE3-08 or BAT54W-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>	$t_p < 1\text{ s}, \delta < 0.5$	$I_{FRM}$	300	mA
Surge forward current <sup>(1)</sup>	$t_p = 10\text{ ms}$	$I_{FSM}$	600	mA
Power dissipation <sup>(1)</sup>		$P_{tot}$	150	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>		$R_{thJA}$	650	K/W
Maximum junction temperature		$T_j$	125	$^{\circ}\text{C}$
Storage temperature range		$T_{stg}$	- 65 to + 150	$^{\circ}\text{C}$
Operating temperature range		$T_{op}$	- 55 to + 125	$^{\circ}\text{C}$

**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	SYMBOL	MIN.	TYP.	MAX.	UNIT
Reserve breakdown voltage	Tested with 100 $\mu\text{A}$ pulses	$V_{(BR)}$	30			V
Leakage current <sup>(1)</sup>	$V_R = 25\text{ V}$	$I_R$			2	$\mu\text{A}$
Forward voltage <sup>(1)</sup>	$I_F = 0.1\text{ mA}$	$V_F$			240	mV
	$I_F = 1\text{ mA}$	$V_F$			320	mV
	$I_F = 10\text{ mA}$	$V_F$			400	mV
	$I_F = 30\text{ mA}$	$V_F$			500	mV
	$I_F = 100\text{ mA}$	$V_F$			800	mV
Diode capacitance	$V_R = 1\text{ V}$ , $f = 1\text{ MHz}$	$C_D$			10	pF
Reserve 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

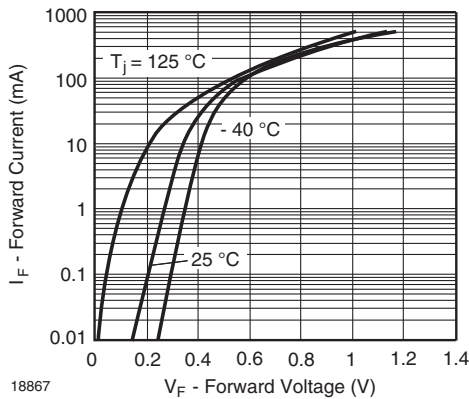
**Note**
<sup>(1)</sup> Pulse test:  $t_p < 300\text{ }\mu\text{s}$ ,  $\theta < 2\text{ }\%$ 
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Typical Forward Current vs. Forward Voltage vs. Various Temperatures

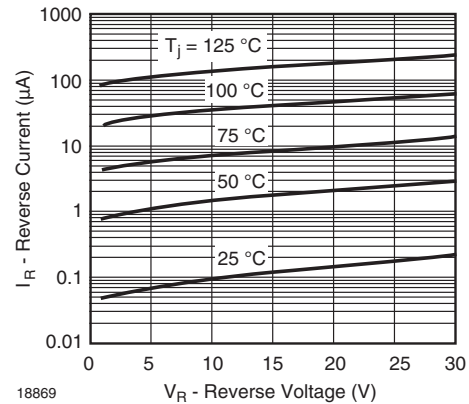


Fig. 3 - Typical Reverse Current vs. Reverse Voltage vs. Various Temperatures

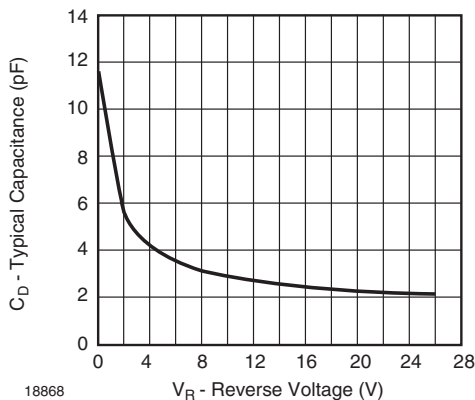
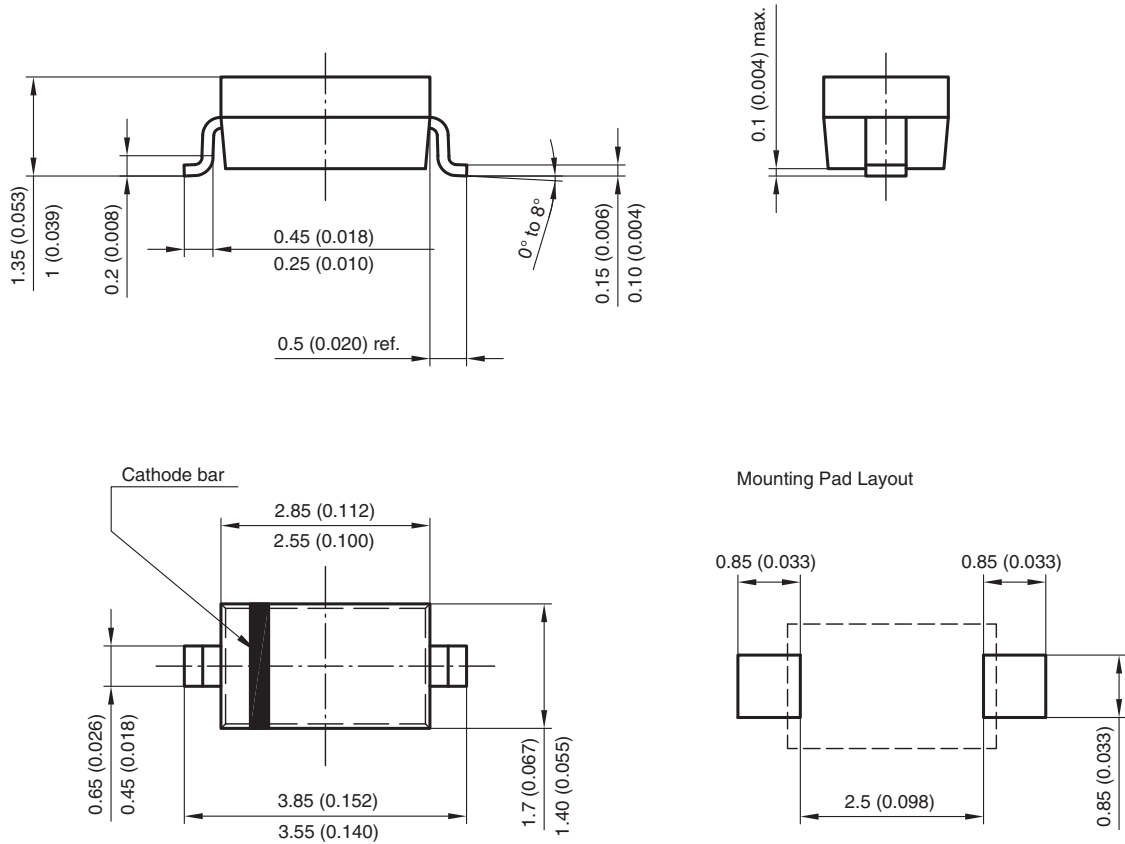


Fig. 2 - Typical Capacitance vs. Reverse Applied Voltage



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



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