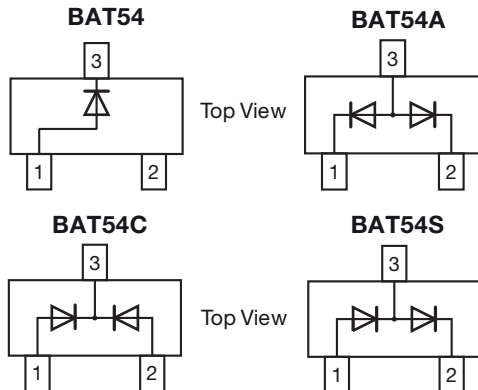


## Small Signal Schottky Diodes, Single and Dual



### 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

### MECHANICAL DATA

**Case:** SOT-23

**Weight:** approx. 8.8 mg

**Packaging codes/options:**

18/10K per 13" reel (8 mm tape), 10K/box

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

PARTS TABLE				
PART	ORDERING CODE	INTERNAL CONSTRUCTION	TYPE MARKING	REMARKS
BAT54	BAT54-E3-08 or BAT54-E3-18	Single diode	L4	Tape and reel
	BAT54-HE3-08 or BAT54-HE3-18			
BAT54A	BAT54A-E3-08 or BAT54A-E3-18	Dual diodes common anode	L42	
	BAT54A-HE3-08 or BAT54A-HE3-18			
BAT54C	BAT54C-E3-08 or BAT54C-E3-18	Dual diodes common cathode	L43	
	BAT54C-HE3-08 or BAT54C-HE3-18			
BAT54S	BAT54S-E3-08 or BAT54S-E3-18	Dual diodes serial	L44	
	BAT54S-HE3-08 or BAT54S-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>		$I_{FRM}$	300	mA
Surge forward current <sup>(1)</sup>	$t_p < 1\text{ s}$	$I_{FSM}$	600	mA
Repetitive peak forward current		$P_{tot}$	230	mW

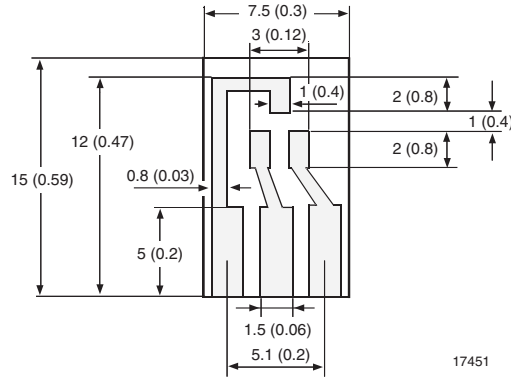
**Note**
<sup>(1)</sup> Device on fiberglass substrate, see layout on next page

THERMAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Thermal resistance junction to ambient air	Device on fiberglass substrate, see layout on next page	$R_{thJA}$	430	K/W
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	$^{\circ}\text{C}$

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Reverse breakdown voltage	$I_R = 100\text{ }\mu\text{A}$ (pulsed)	$V_{(BR)}$	30			V
Leakage current	Pulsed test $t_p < 300\text{ }\mu\text{s}$ , $\delta < 2\%$ at $V_R = 25\text{ V}$	$I_R$			2	$\mu\text{A}$
Forward voltage	$I_F = 0.1\text{ mA}$ , $t_p < 300\text{ }\mu\text{s}$ , $\delta < 2\%$	$V_F$			240	mV
	$I_F = 1\text{ mA}$ , $t_p < 300\text{ }\mu\text{s}$ , $\delta < 2\%$	$V_F$			320	mV
	$I_F = 10\text{ mA}$ , $t_p < 300\text{ }\mu\text{s}$ , $\delta < 2\%$	$V_F$			400	mV
	$I_F = 30\text{ mA}$ , $t_p < 300\text{ }\mu\text{s}$ , $\delta < 2\%$	$V_F$			500	mV
	$I_F = 100\text{ mA}$ , $t_p < 300\text{ }\mu\text{s}$ , $\delta < 2\%$	$V_F$			800	mV
Diode capacitance	$V_R = 1\text{ V}$ , $f = 1\text{ MHz}$	$C_D$			10	pF
Reverse recovery time	$I_F = 10\text{ mA}$ to $I_R = 10\text{ mA}$ , $i_R = 1\text{ mA}$ , $R_L = 100\text{ }\Omega$	$t_{rr}$			5	ns

**LAYOUT FOR  $R_{thJA}$  TEST**

Thickness:  
Fiberglass 15 mm (0.059")  
Copper leads 0.3 mm (0.012")



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

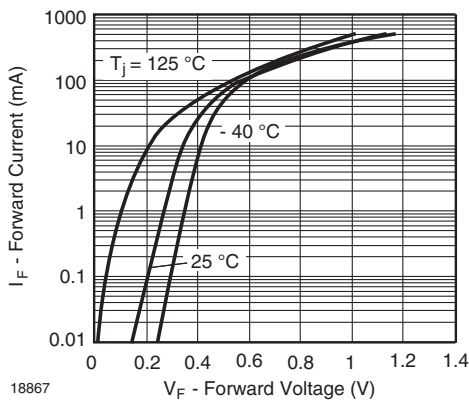


Fig. 1 - Typical Forward Voltage Forward Current vs. Various Temperatures

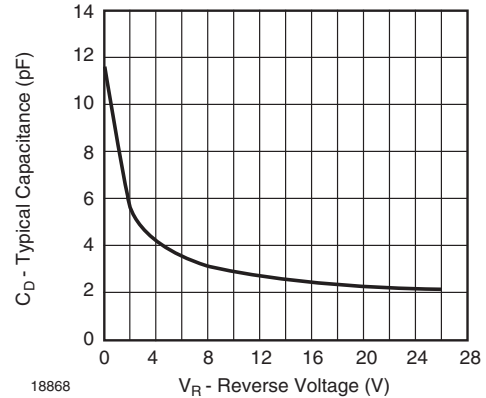


Fig. 2 - Diode Capacitance vs. Reverse Voltage  $V_R$

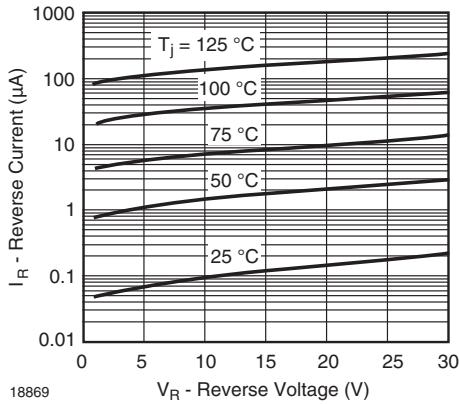
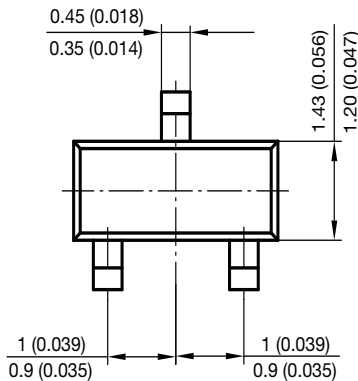
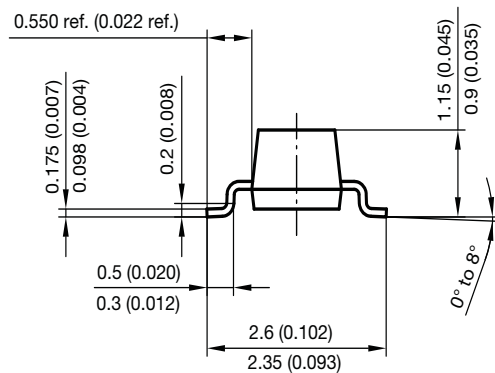
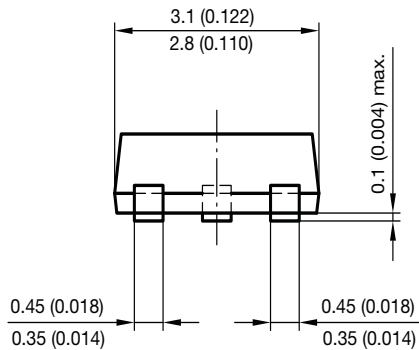
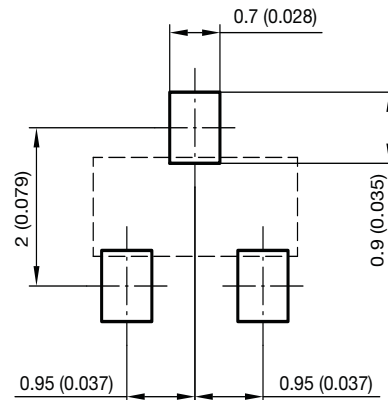


Fig. 3 - Typical Variation of Reverse Current vs. Various Temperatures

**PACKAGE DIMENSIONS** in millimeters (inches): **SOT-23**



Foot print recommendation:



Document no.: 6.541-5014.01-4  
 Rev. 8 - Date: 23.Sept.2009  
 17418



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