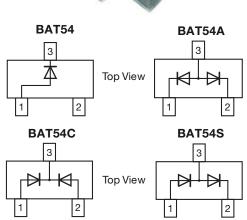


Vishay Semiconductors

# 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

RoHS

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

#### **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		
	BAT54-HE3-08 or BAT54-HE3-18	Sirigle diode	L <del>4</del>	Tape and reel	
BAT54A	BAT54A-E3-08 or BAT54A-E3-18	Dual diodes common anode	L42		
	BAT54A-HE3-08 or BAT54A-HE3-18	Dual diodes common anode	L42		
BAT54C	BAT54C-E3-08 or BAT54C-E3-18	Dual diodes common cathode	L43		
	BAT54C-HE3-08 or BAT54C-HE3-18	Dual diodes common cathode	L43	1	
BAT54S	BAT54S-E3-08 or BAT54S-E3-18	Dual diodes serial	L44		
	BAT54S-HE3-08 or BAT54S-HE3-18	Duai diodes seriai	L44		

<b>ABSOLUTE MAXIMUM RATINGS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	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)		I <sub>FRM</sub>	300	mA	
Surge forward current (1)	t <sub>p</sub> < 1 s	I <sub>FSM</sub>	600	mA	
Repetitive peak forward current		P <sub>tot</sub>	230	mW	

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

THERMAL CHARACTERISTICS (T <sub>amb</sub> = 25 °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 <sub>thJA</sub>	430	K/W	
Junction temperature		Tj	125	°C	
Storage temperature range		T <sub>stg</sub>	- 65 to + 150	°C	
Operating temperature range		T <sub>op</sub>	- 55 to + 125	°C	

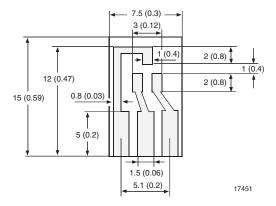


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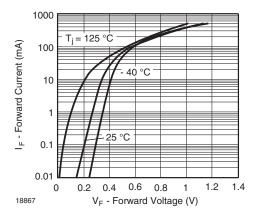
<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Reserve breakdown voltage	I <sub>R</sub> = 100 μA (pulsed)	V <sub>(BR)</sub>	30			V
Leakage current	Pulsed test $t_p$ < 300 $\mu$ s, $\delta$ <2 % at $V_R$ = 25 $V$	I <sub>R</sub>			2	μΑ
	$I_F$ = 0.1 mA, $t_p$ < 300 $\mu$ s, $\delta$ < 2 %	V <sub>F</sub>			240	mV
	$I_F$ = 1 mA, $t_p$ < 300 $\mu$ s, $\delta$ < 2 %	V <sub>F</sub>			320	mV
Forward voltage	$I_F$ = 10 mA, $t_p$ < 300 $\mu s,\delta < 2$ %	$V_{F}$			400	mV
	$I_F$ = 30 mA, $t_p$ < 300 $\mu$ s, $\delta$ < 2 %	V <sub>F</sub>			500	mV
	$I_F$ = 100 mA, $t_p$ < 300 $\mu$ s, $\delta$ < 2 %	V <sub>F</sub>			800	mV
Diode capacitance	V <sub>R</sub> = 1 V, f = 1 MHz	C <sub>D</sub>			10	pF
Reserve recovery time	$I_F$ = 10 mA to $I_R$ = 10 mA, $I_R$ = 1 mA, $R_L$ = 100 $\Omega$	t <sub>rr</sub>			5	ns

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

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



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





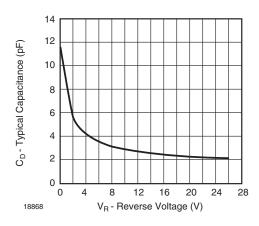


Fig. 2 - Diode Capacitance vs. Reverse Voltage  $V_{\mathsf{R}}$ 

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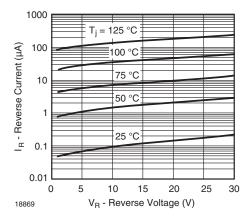
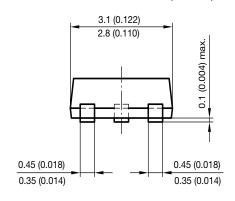
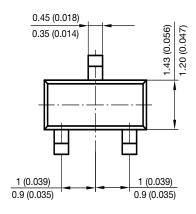


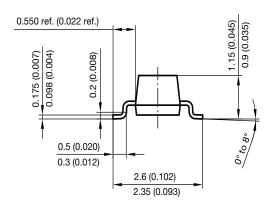
Fig. 3 - Typical Variation of Reverse Current vs. Various Temperatures

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

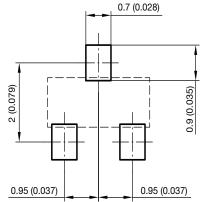




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Vishay

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Revision: 02-Oct-12 Document Number: 91000

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### Офис по работе с юридическими лицами:

105318, г. Москва, ул. Щербаковская д. 3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru moschip.ru\_6 moschip.ru 4 moschip.ru 9