## BAT54-G, BAT54A-G, BAT54C-G, BAT54S-G

Vishay Semiconductors

RoHS

HALOGEN

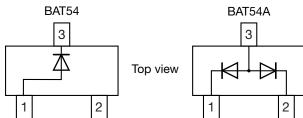
FREE

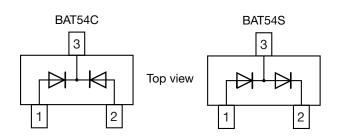
GREEN

(5-2008)

# 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 guardring against excessive voltage, such as electrostatic discharges
- AEC-Q101 qualified available (part number on request)
- Molding compound meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level (MSL) 1
- Base P/N-G3 green, commercial grade
- Material categorization: for definitions of compliance please see <a href="https://www.vishay.com/doc?99912"><u>www.vishay.com/doc?99912</u></a>

## MECHANICAL DATA

Case: SOT-23

Weight: approx. 9.2 mg
Packaging codes / options:

18/10K per 13" reel (8 mm tape), 10K/box 08/3K per 7" reel (8 mm tape), 15K/box

### LINKS TO ADDITIONAL RESOURCES











PARTS TABLE							
PART	ORDERING CODE	AEC-Q101 QUALIFIED	TYPE MARKING	CIRCUIT CONFIGURATION	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY	
BAT54-G	BAT54-G3-08	no	L8	Single	3 000	15 000	
	BAT54-G3-18	no	Lo		10 000	10 000	
BAT54A-G	BAT54A-G3-08	no	L46	Common anode	3 000	15 000	
	BAT54A-G3-18	no			10 000	10 000	
BAT54C-G	BAT54C-G3-08	no	L47	Common cathode	3 000	15 000	
	BAT54C-G3-18	no			10 000	10 000	
BAT54S-G	BAT54S-G3-08	no	L48	L 49 Dual parial	Dual serial	3 000	15 000
	BAT54S-G3-18	no		Duai Seriai	10 000	10 000	

PACKAGE						
PACKAGE NAME WEIGHT		MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS		
SOT-23	9.2 mg	UL 94 V-0	MSL 1 (according J-STD-020)	Peak temperature max. 260 °C		



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<b>ABSOLUTE MAXIMUM RATINGS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT		
Repetitive peak reverse voltage		$V_{RRM} = V_{RWM} = V_{R}$	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		
Power dissipation	on FR-4 board with recommended soldering footprint	P <sub>tot</sub>	230	mW		
rowei dissipation	Infinite heatsink	⊏tot	330	mW		

#### Note

<sup>(1)</sup> Infinite heatsink

THERMAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT		
Thermal resistance junction to ambient air	according to JEDEC® 51-3 on FR-4 board with recommended soldering footprint	R <sub>thJA</sub>	430	K/W		
Thermal resistance junction lead	Infinite heatsink	R <sub>thJL</sub>	300	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		

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

#### Note

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

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

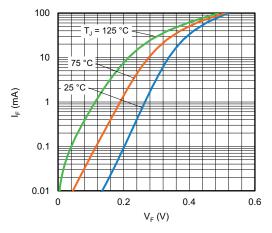
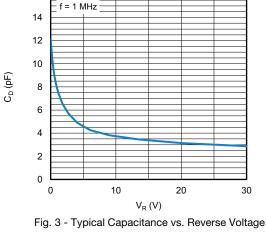


Fig. 1 - Typical Forward Current vs. Forward Voltage



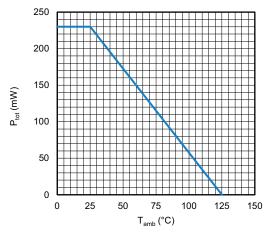


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

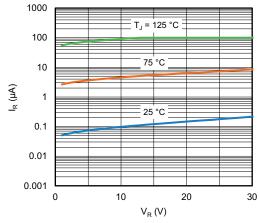


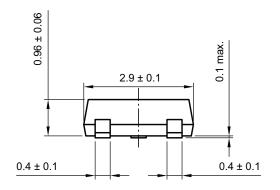
Fig. 4 - Typical Reverse Leakage Current vs. Reverse Voltage

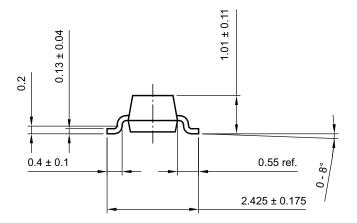


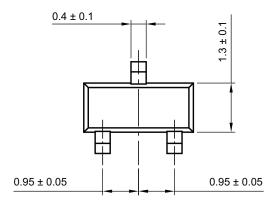
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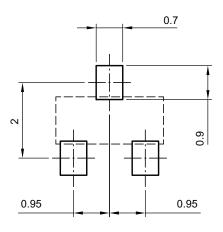
### **PACKAGE DIMENSIONS** in millimeters: **SOT-23**







### footprint recommendation:

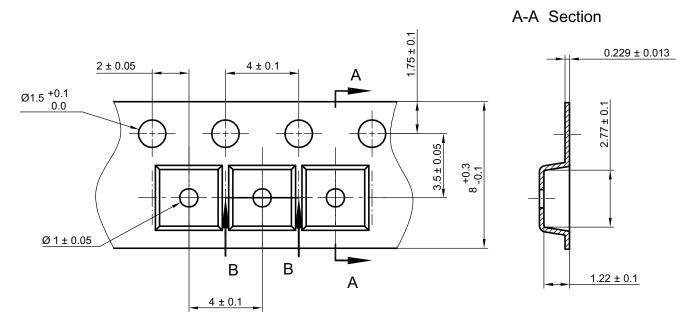


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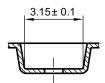


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### **CARRIER TAPE SOT-23**

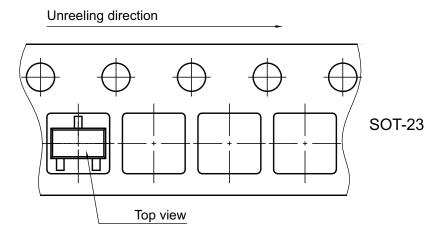


**B-B Section** 



Created Date: 04-Feb-2010 Rev. Date: 07-Feb-2022

### **ORIENTATION IN CARRIER TAPE SOT-23**



Created Date: 04-Feb-2010 Rev. Date: 07-Nov-2022



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