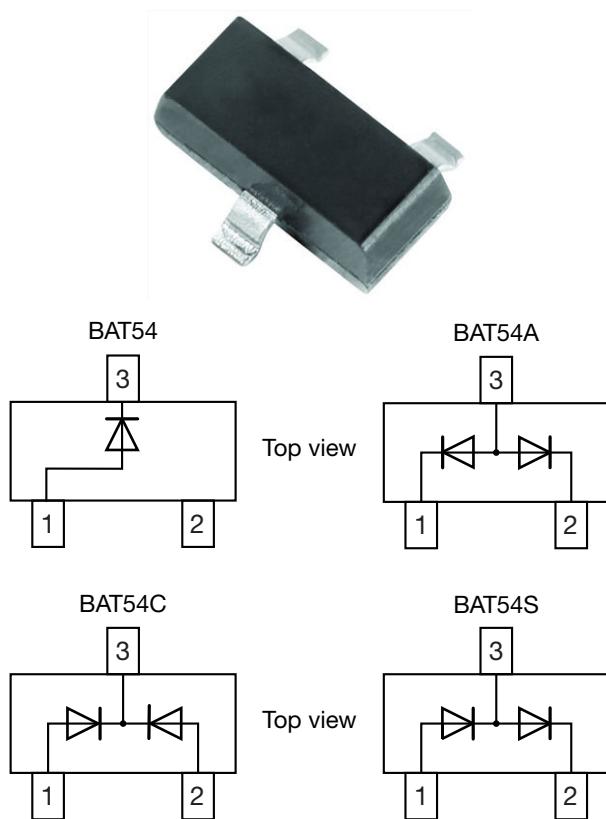


## Small Signal Schottky Diodes, Single and Dual



### 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
- Molding compound meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level (MSL) 1
- 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)



### 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



**SPICE**  
Models



PARTS TABLE						
PART	ORDERING CODE	AEC-Q101 QUALIFIED	TYPE MARKING	CIRCUIT CONFIGURATION	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
BAT54	BAT54-E3-08	no	L8	Single	3 000 (8 mm tape on 7" reel)	15 000
	BAT54-HE3_A-08	yes			10 000 (8 mm tape on 13" reel)	10 000
	BAT54-E3-18	no				
	BAT54-HE3_A-18	yes				
BAT54A	BAT54A-E3-08	no	L46	Common anode	3 000 (8 mm tape on 7" reel)	15 000
	BAT54A-HE3_A-08	yes			10 000 (8 mm tape on 13" reel)	10 000
	BAT54A-E3-18	no				
	BAT54A-HE3_A-18	yes				
BAT54C	BAT54C-E3-08	no	L47	Common cathode	3 000 (8 mm tape on 7" reel)	15 000
	BAT54C-HE3_A-08	yes			10 000 (8 mm tape on 13" reel)	10 000
	BAT54C-E3-18	no				
	BAT54C-HE3_A-18	yes				
BAT54S	BAT54S-E3-08	no	L48	Dual serial	3 000 (8 mm tape on 7" reel)	15 000
	BAT54S-HE3_A-08	yes			10 000 (8 mm tape on 13" reel)	10 000
	BAT54S-E3-18	no				
	BAT54S-HE3_A-18	yes				

<b>PACKAGE</b>				
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

<b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_{amb} = 25 \text{ }^{\circ}\text{C}$ , unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Repetitive peak reverse voltage		$V_{RRM} = V_{RWM} = V_R$	30	V
Forward continuous current <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
Power dissipation	on FR-4 board with recommended soldering footprint	$P_{tot}$	230	mW
	Infinite heatsink		330	mW

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

<b>THERMAL CHARACTERISTICS</b> ( $T_{amb} = 25 \text{ }^{\circ}\text{C}$ , 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	$R_{thJA}$	430	K/W
Thermal resistance junction lead	Infinite heatsink	$R_{thJL}$	300	K/W
Junction temperature		$T_j$	125	°C
Storage temperature range		$T_{stg}$	-65 to +150	°C
Operating temperature range		$T_{op}$	-55 to +125	°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	$I_R = 100 \mu\text{A}$ (pulsed)	$V_{BR}$	30			V
Leakage current <sup>(1)</sup>	at $V_R = 25 \text{ V}$	$I_R$			2	μA
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
Reverse recovery time	$I_F = I_R = 10 \text{ mA}, i_R = 1 \text{ mA}, R_L = 100 \Omega$	$t_{rr}$			5	ns

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

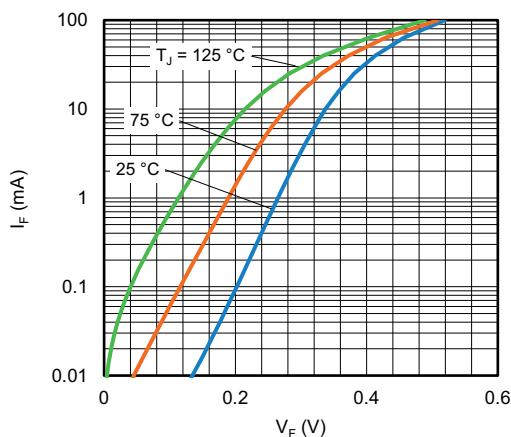
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25 \text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Typical Forward Current vs. Forward Voltage

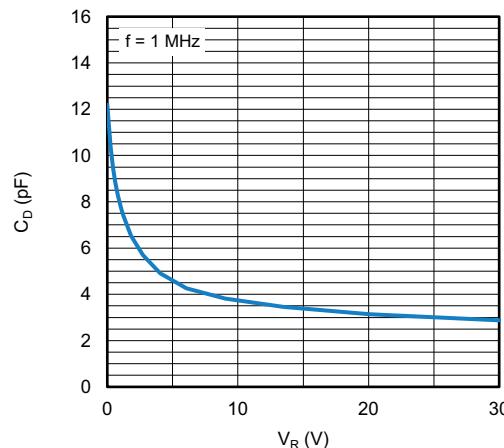


Fig. 3 - Typical Capacitance vs. Reverse Voltage

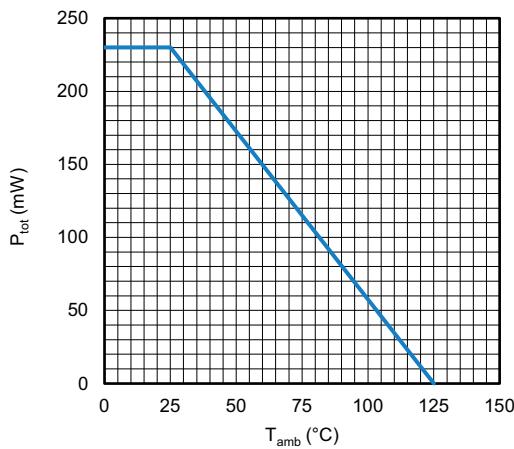


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

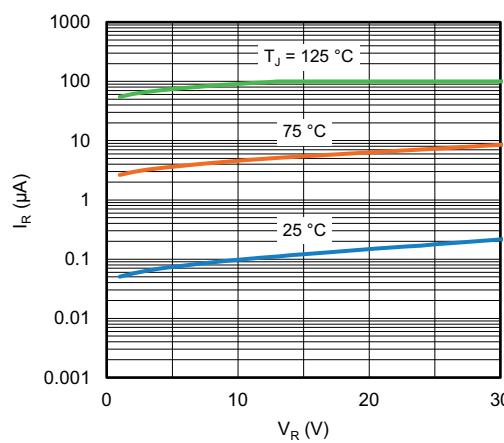
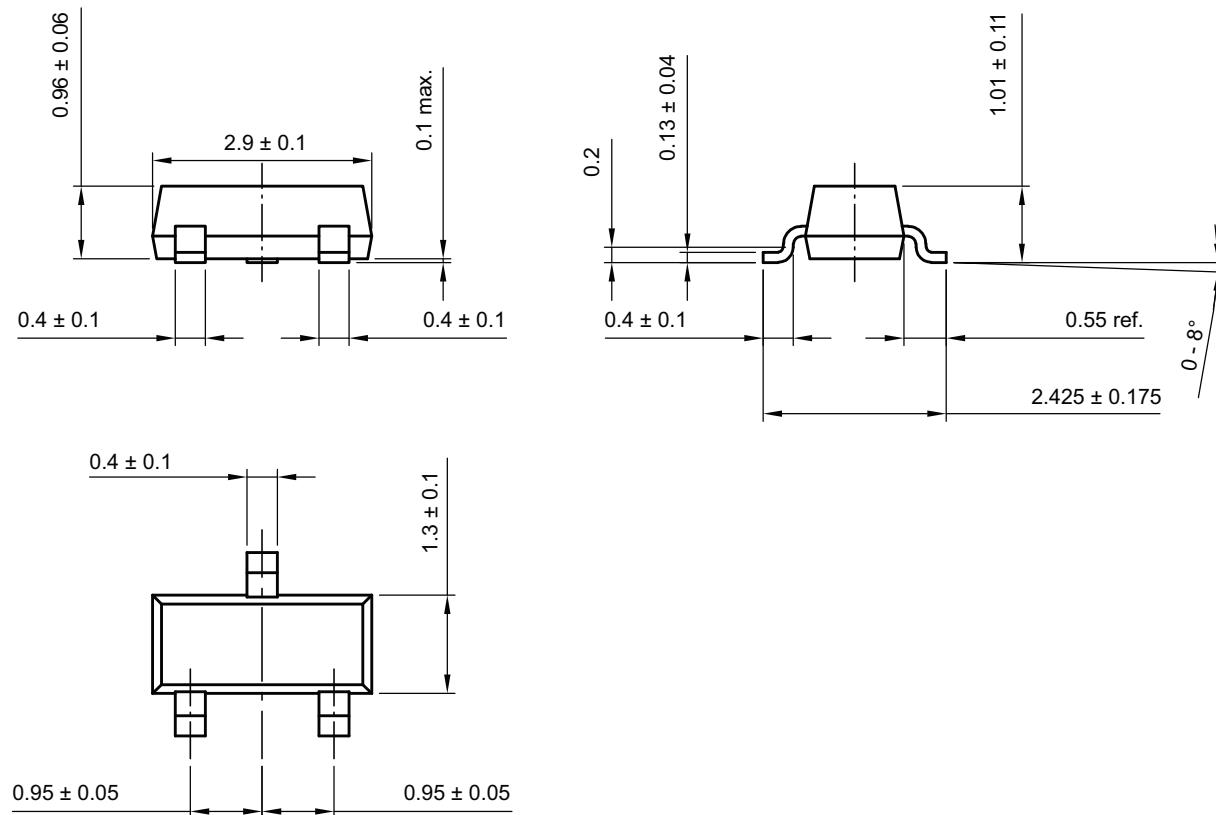
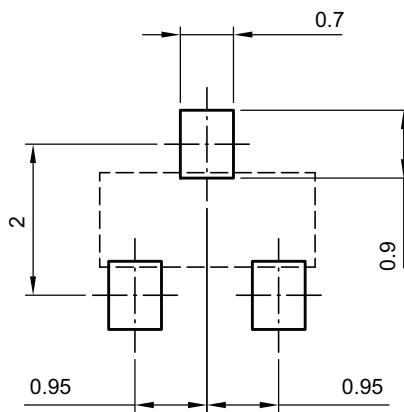


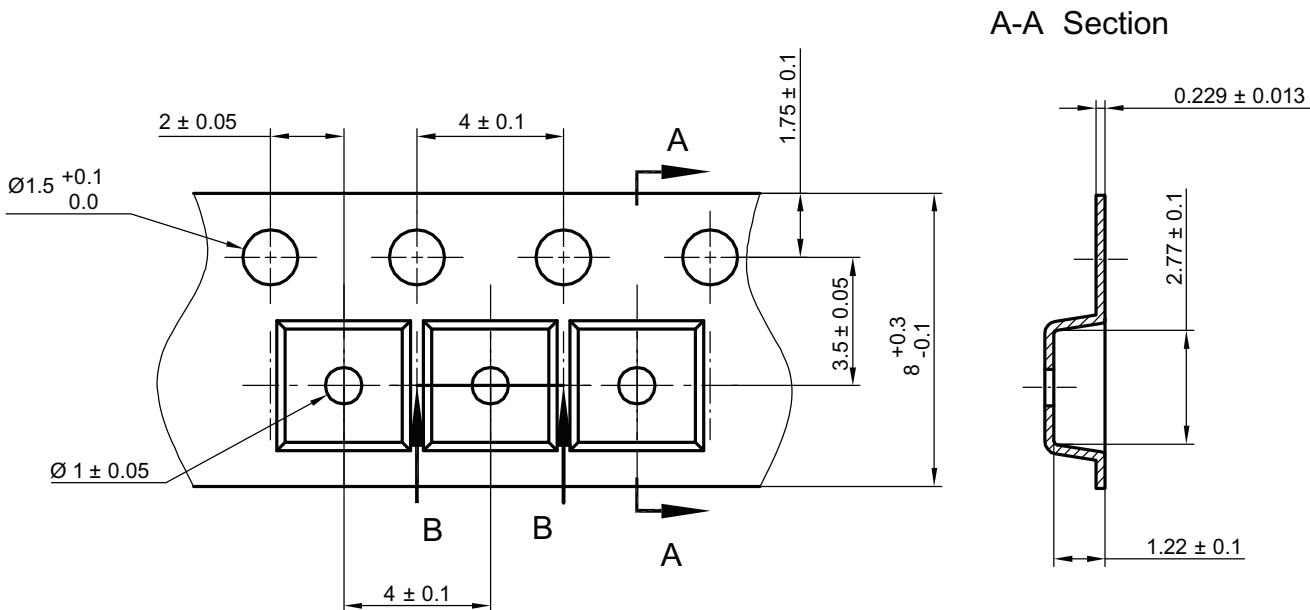
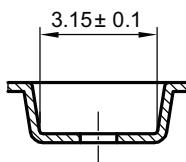
Fig. 4 - Typical Reverse Leakage Current vs. Reverse Voltage

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


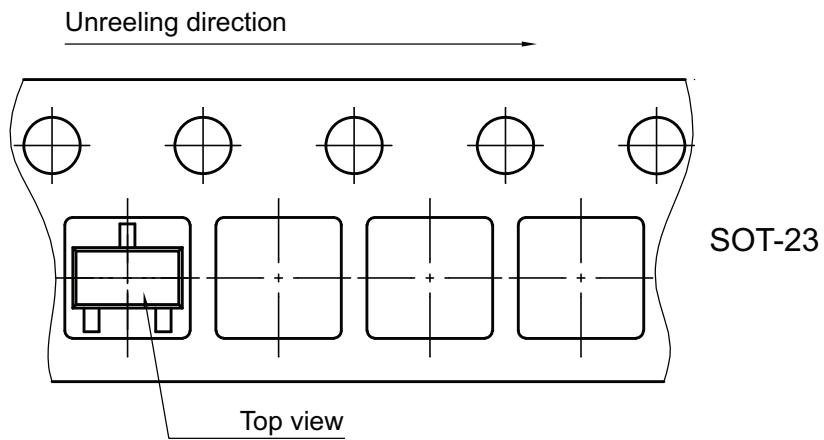
footprint recommendation:



Created - Date: 18-Oct-2021  
Rev. 01 - Date: 18-Jan-2022  
S8-V-3929.01-009 (4)

**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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