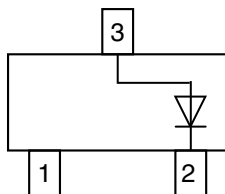
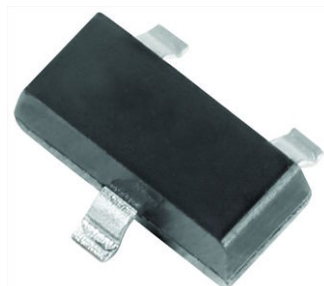


## Small Signal Fast Switching Diode



### FEATURES

- Fast switching speed
- Surface mount package
- Well suited for automated assembly process
- 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/NHE3\_A - RoHS-compliant, AEC-Q101 qualified
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



### LINKS TO ADDITIONAL RESOURCES



### 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

### PARTS TABLE

PART	ORDERING CODE	AEC-Q101 QUALIFIED	TYPE MARKING	CIRCUIT CONFIGURATION	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
BAL99	BAL99-E3-08	no	JG	Single	3 000 (8 mm tape on 7" reel)	15 000
	BAL99HE3_A-08	yes				
	BAL99-E3-18	no			10 000 (8 mm tape on 13" reel)	10 000
	BAL99HE3_A-18	yes				

### ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Repetitive peak reverse voltage = working peak reverse voltage = DC blocking voltage		$V_{RRM} = V_{RWM} = V_R$	70	V
Peak forward surge current <sup>(1)</sup>	$t_p = 1 \mu\text{s}$	$I_{FSM}$	2	A
	$t_p = 1 \text{ ms}$	$I_{FSM}$	1	A
	$t_p = 1 \text{ s}$	$I_{FSM}$	0.5	A
Continuous forward current <sup>(1)</sup>		$I_F$	350	mA
Average forward current	Half wave rectification with resistive load and $f \geq 50 \text{ Hz}$	$I_{FAV}$	250	mA
Power dissipation	On FR-4 board with recommended soldering footprint	$P_{tot}$	270	mW
	Infinite heatsink		390	mW

#### Note

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

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

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Thermal resistance junction to ambient air	according to JEDEC <sup>®</sup> 51-3 on FR-4 board with recommended soldering footprint	$R_{thJA}$	460	K/W
Thermal resistance junction to lead	Infinite heat sink	$R_{thJL}$	320	K/W
Junction temperature		$T_j$	150	$^{\circ}\text{C}$
Storage temperature range		$T_{stg}$	-55 to +150	$^{\circ}\text{C}$
Operating temperature range		$T_{op}$	-55 to +150	$^{\circ}\text{C}$

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	MAX.	UNIT
Forward voltage	$I_F = 1\text{ mA}$	$V_F$	0.715	V
	$I_F = 10\text{ mA}$	$V_F$	0.855	V
	$I_F = 50\text{ mA}$	$V_F$	1	V
	$I_F = 150\text{ mA}$	$V_F$	1.25	V
Reverse current	$V_R = 70\text{ V}$	$I_R$	2500	nA
	$V_R = 70\text{ V}, T_J = 150\text{ }^{\circ}\text{C}$	$I_R$	100	$\mu\text{A}$
	$V_R = 25\text{ V}, T_J = 150\text{ }^{\circ}\text{C}$	$I_R$	30	$\mu\text{A}$
Diode capacitance	$V_F = V_R = 0, f = 1\text{ MHz}$	$C_D$	1.5	pF
Reverse recovery time	$I_F = I_R = 10\text{ mA}, i_R = 1\text{ mA}$	$t_{rr}$	6	ns

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

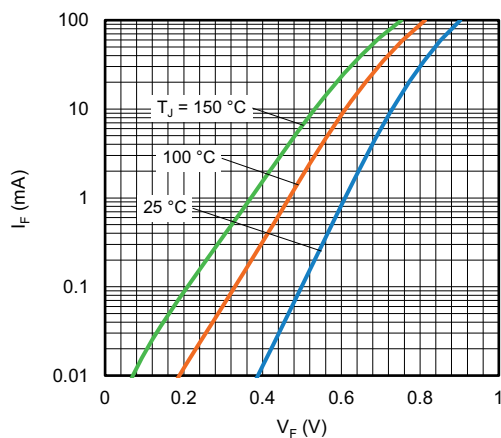


Fig. 1 - Typical Forward Current vs. Forward Voltage

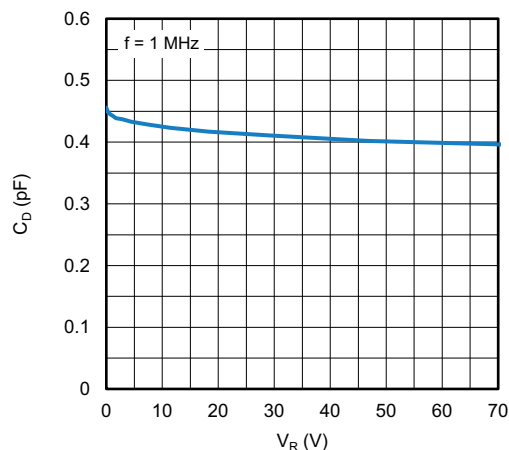


Fig. 3 - Typical Capacitance vs. Reverse Voltage

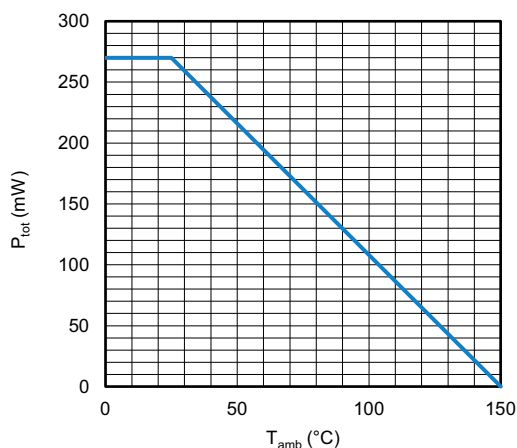


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

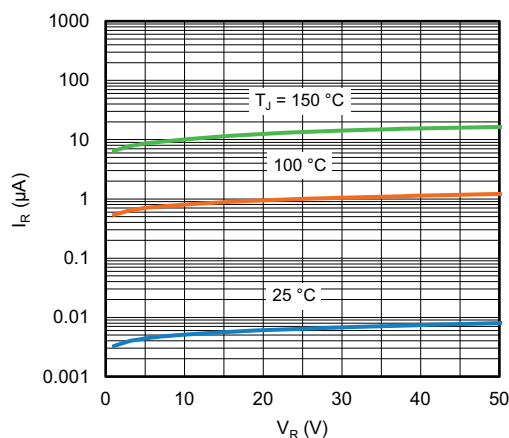
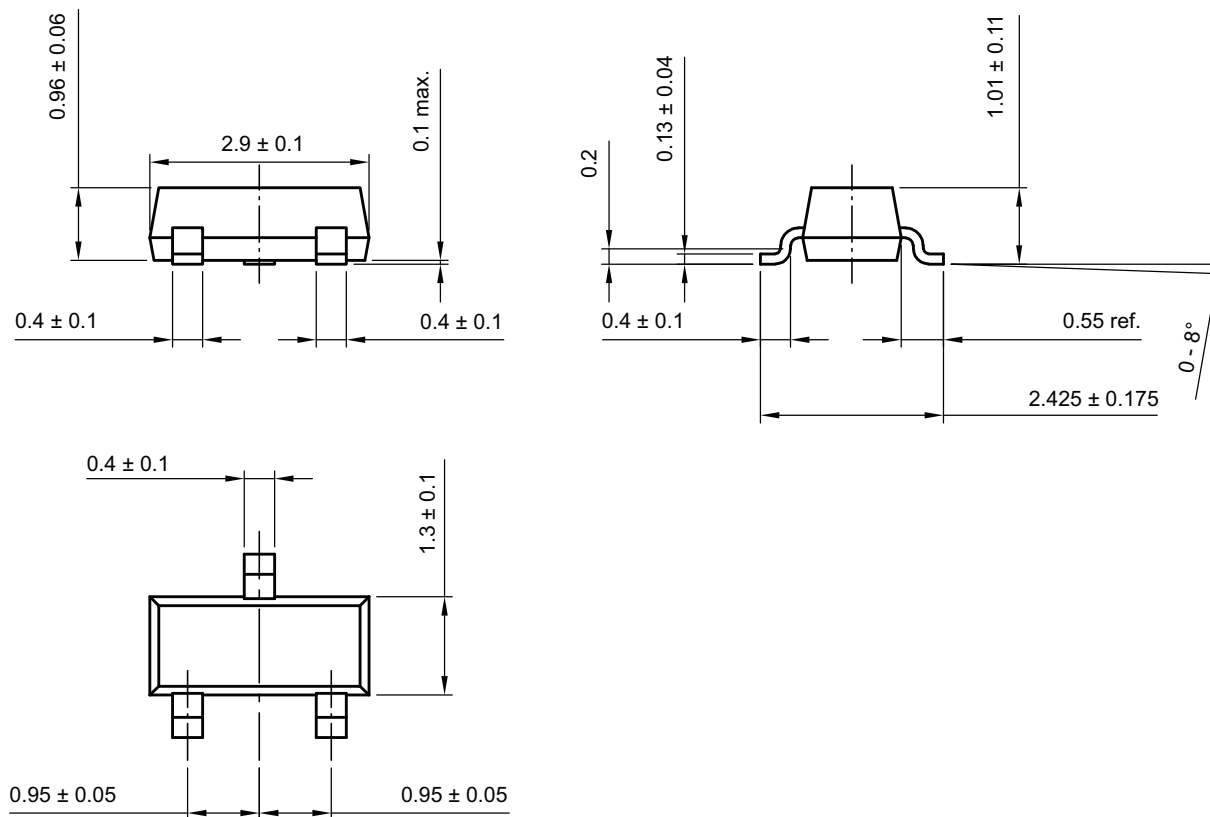


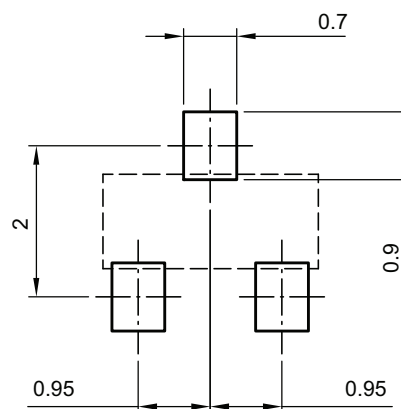
Fig. 4 - Typical Reverse Leakage Current vs. Reverse Voltage



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



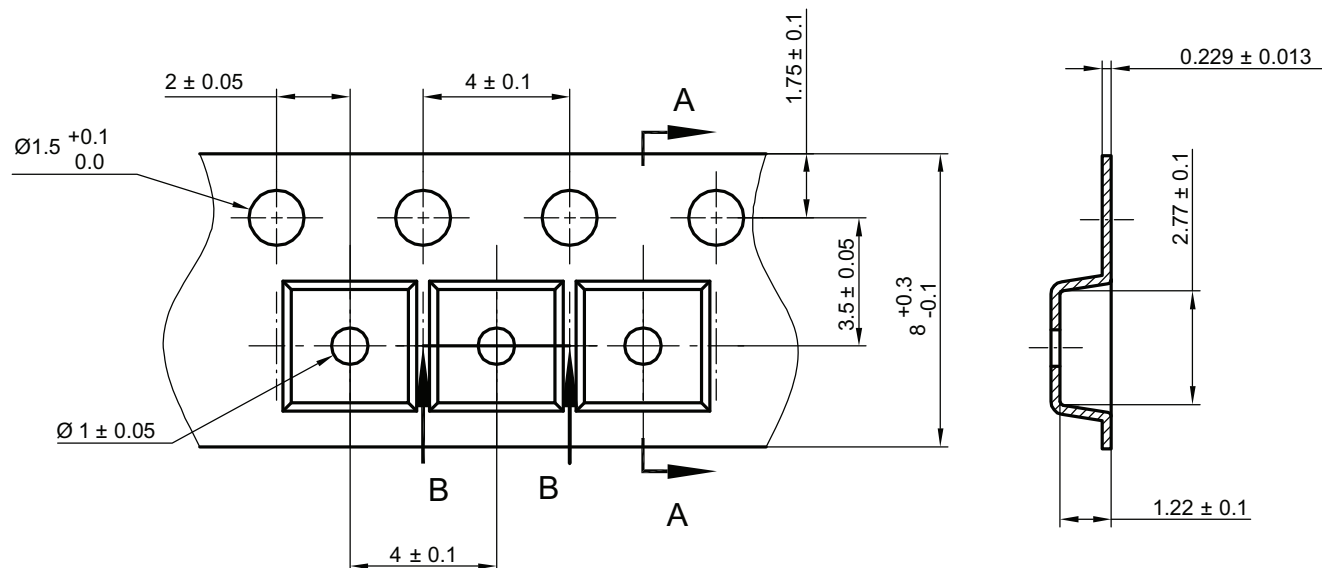
footprint recommendation:



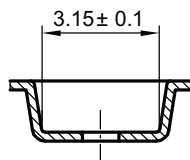
Created - Date: 18-Oct-2021  
Rev. 01 - Date: 18-Jan-2022  
S8-V-3929.01-009 (4)



**CARRIER TAPE SOT-23**

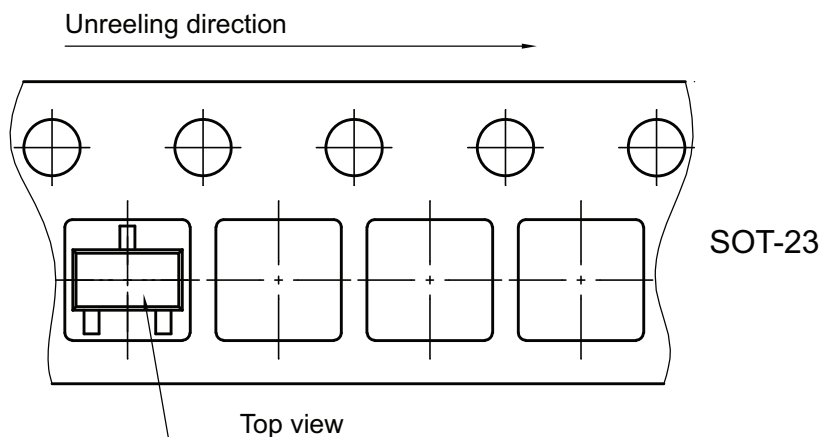


**B-B Section**



Created Date: 04-Feb-2010  
Rev. Date: 07-Feb-2022  
S8-V-3929.01-005 (4)

**ORIENTATION IN CARRIER TAPE SOT-23**



Created Date: 04-Feb-2010  
Rev. Date: 07-Nov-2022  
S8-V-3929.01-005 (4)



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