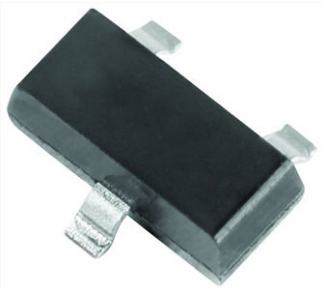
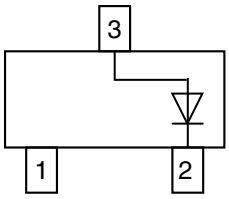
Small Signal Fast Switching Diode





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

AUTOMOTIVE GRADE Available

Pb-free

e3

RoHS COMPLIANT

LINKS TO ADDITIONAL RESOURCES

3D Models | SPICE Models | Marking | Parametric Search | Order Samples

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 °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 (1)	t_p = 1 µs	I_{FSM}	2	A
	t_p = 1 ms	I_{FSM}	1	A
	t_p = 1 s	I_{FSM}	0.5	A
Continuous forward current (1)		I_F	350	mA
Average forward current	Half wave rectification with resistive load and f ≥ 50 Hz	I_{FAV}	250	mA
Power dissipation	On FR-4 board with recommended soldering footprint	P_{tot}	270	mW
	Infinite heatsink		390	mW

Note
(1) Infinite heatsink

THERMAL CHARACTERISTICS (T_{amb} = 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_{thJA}	460	K/W
Thermal resistance junction to lead	Infinite heat sink	R_{thJL}	320	K/W
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	-55 to +150	°C
Operating temperature range		T_{op}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)				
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MAX.**	**UNIT**
Forward voltage	I_F = 1 mA	V_F	0.715	V
	I_F = 10 mA	V_F	0.855	V
	I_F = 50 mA	V_F	1	V
	I_F = 150 mA	V_F	1.25	V
Reverse current	V_R = 70 V	I_R	2500	nA
	V_R = 70 V, T_j = 150 °C	I_R	100	µA
	V_R = 25 V, T_j = 150 °C	I_R	30	µA
Diode capacitance	V_F = V_R = 0, f = 1 MHz	C_D	1.5	pF
Reverse recovery time	I_F = I_R = 10 mA, i_R = 1 mA	t_{rr}	6	ns

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

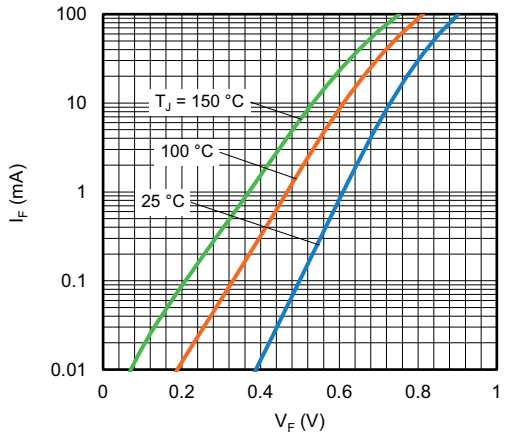


Fig. 1 - Typical Forward Current vs. Forward Voltage

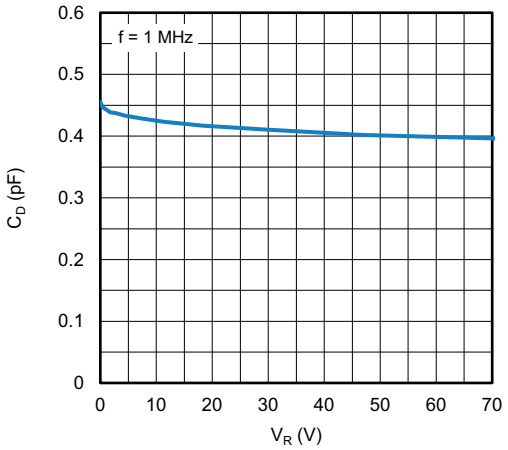


Fig. 3 - Typical Capacitance vs. Reverse Voltage

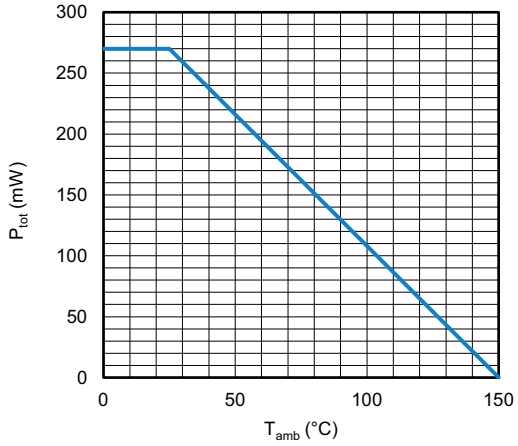


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

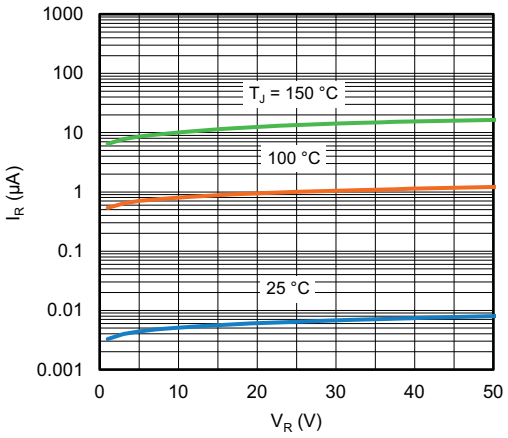
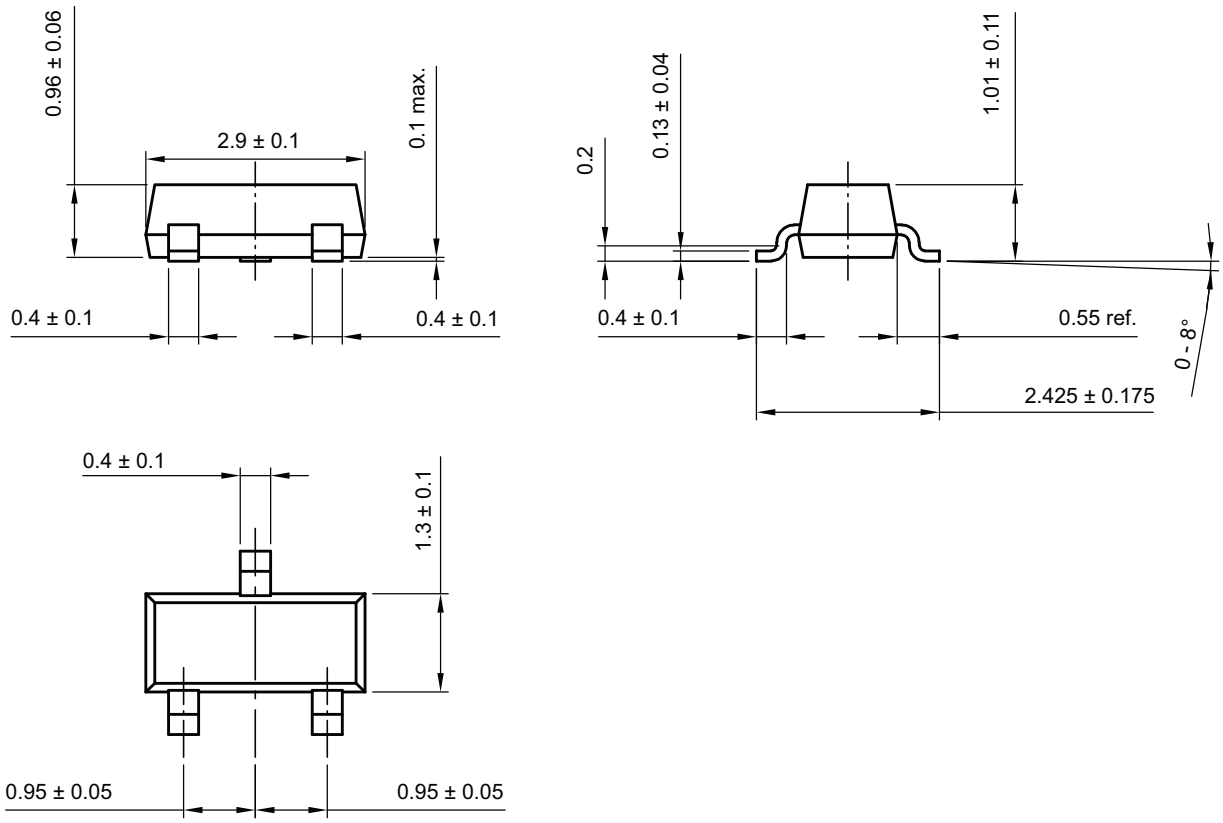
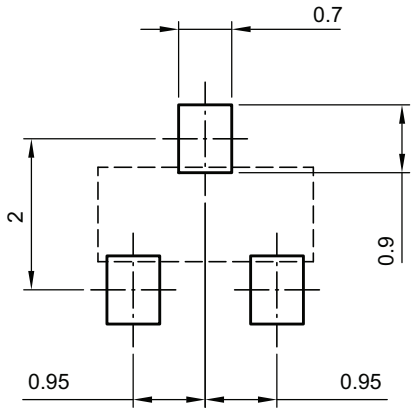


Fig. 4 - Typical Reverse Leakage Current vs. Reverse Voltage

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

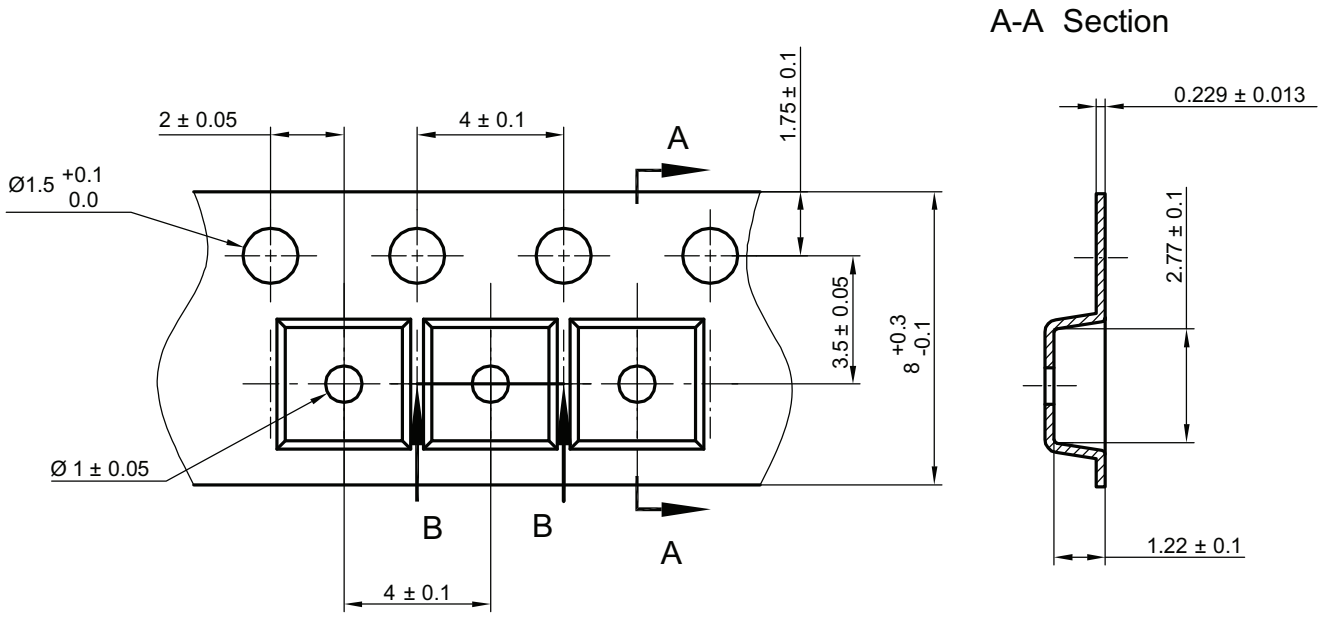


footprint recommendation:

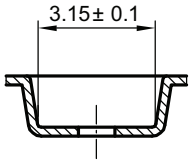


Created - Date: 18-Oct-2021
Rev. 01 - Date: 18-Jan-2022
S8-V-3929.01-009 (4)

CARRIER TAPE SOT-23

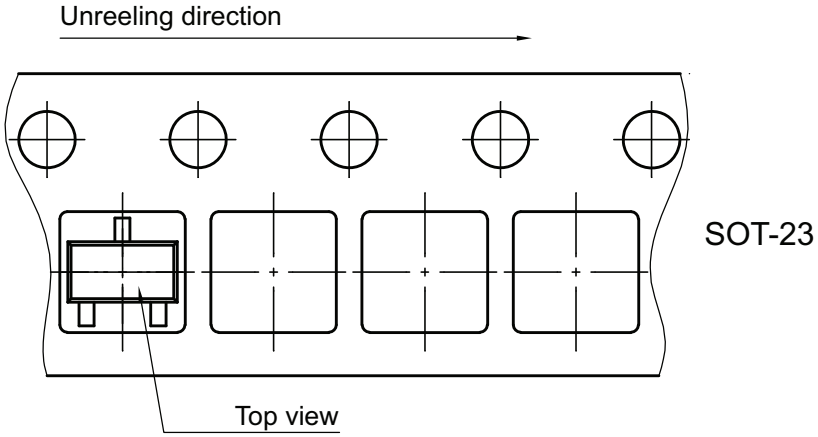


B-B Section



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

ORIENTATION IN CARRIER TAPE SOT-23



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Rev. Date: 07-Nov-2022
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