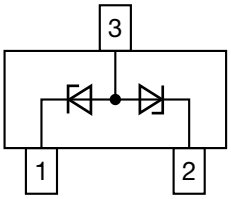
Small Signal Zener Diodes, Dual



FEATURES

- Dual silicon planar Zener diodes with common anode configurations
- Dual package provides for bidirectional or separate unidirectional configurations
- The dual configurations protect two separate lines with only one device
- Peak power: 40 W at 1 ms (bidirectional)
- For bidirectional operation, circuit connected to pins 1 and 2. For unidirectional operation, circuit connected to pins 1 and 3 or pins 2 and 3
- AEC-Q101 qualified available
- ESD capability according to AEC-Q101:
  human body model > 8 kV
  machine model > 800 V
- 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

AUTOMOTIVE GRADE Available

Pb-free

e3

RoHS COMPLIANT

DESIGN SUPPORT TOOLS

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3D Models Available

PRIMARY CHARACTERISTICS		
PARAMETER	VALUE	UNIT
V_Z range nom.	27	V
Test current I_{ZT}	1	mA
V_{BR}	27	V
V_{WM}	22	V
P_{PPM}	40	W
T_J max.	150	°C
V_Z specification	Pulse current	
Circuit configuration	Common anode	
Polarity	Uni-directional, bi-directional	

ORDERING INFORMATION

DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
MMBZ27VDA	MMBZ27VDA-E3-08	3000 (8 mm tape on 7" reel)	15 000
	MMBZ27VDA-HE3-08		
	MMBZ27VDA-E3-18	10 000 (8 mm tape on 13" reel)	10 000
	MMBZ27VDA-HE3-18		

PACKAGE

PACKAGE NAME	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
SOT-23	8.8 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Peak power dissipation (1)		P_{PK}	40	W
Power dissipation on FR-5 board (2)	T_{amb} = 25 °C, derate above 25 °C	P_{tot}	225	mW
			1.8	mW/K
Power dissipation on alumina substrate (3)	T_{amb} = 25 °C, derate above 25 °C	P_{tot}	300	mW
			2.4	mW/K
Thermal resistance junction to ambient air		R_{thJA}	556	K/W
Operating temperature range		T_{op}	-55 to +150	°C
Storage temperature range		T_j, T_{stg}	-55 to +150	°C

Notes

(1) Non repetitive current pulse per figure 2 and derate above T_{amb} = 25 °C per figure 3
(2) FR-5 = 1" x 0.75" x 0.62"
(3) Alumina = 0.4" x 0.3" x 0.024", 99.5 % alumina

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

PART NUMBER	MARKING CODE	ZENER VOLTAGE RANGE (1)			TEST CURRENT	WORKING PEAK REVERSE VOLTAGE	MAX. REVERSE LEAKAGE CURRENT	MAX. REVERSE SURGE CURRENT	MAX. REVERSE VOLTAGE (CLAMPING VOLTAGE) (2)	MAX. TEMPERATURE COEFFICIENT	MAX. FORWARD VOLTAGE	
		V_Z at I_{ZT1}			I_{ZT1}	V_{RWM}	I_R at V_{RWM}	I_{PP}	V_C at I_{RSM}	V_Z	V_F at I_F	
		V			mA	V	nA	A	V	mV/°C	V	mA
		MIN.	NOM.	MAX.								
MMBZ27VDA	TA7	25.65	27	28.35	1	22	80	1	38	30	1.1	200

Notes

(1) V_Z measured at pulse test current I_{ZT1} at an ambient temperature of 25 °C

(2) Surge current waveform per figure 2 and derate per figure 3

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

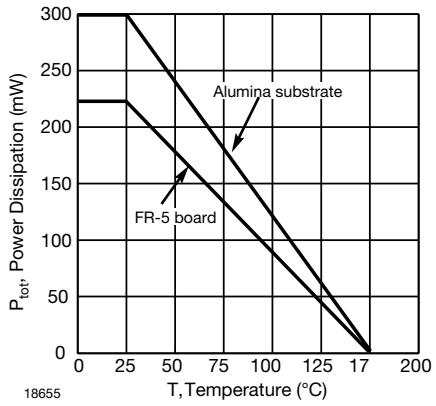


Fig. 1 - Steady State Power Derating Curve

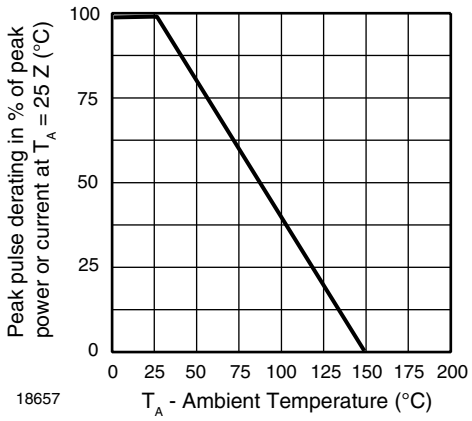


Fig. 3 - Pulse Derating Curve

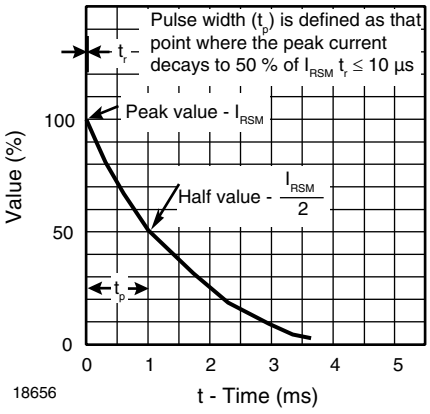
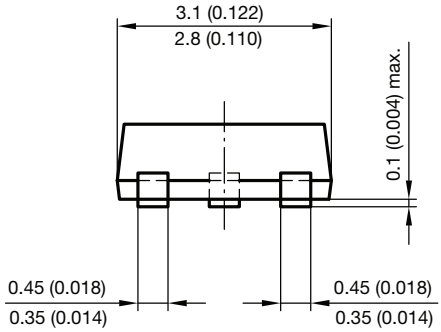
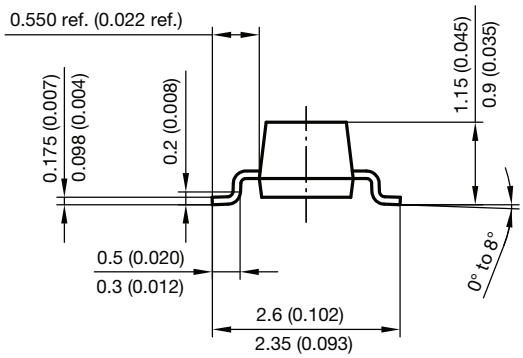
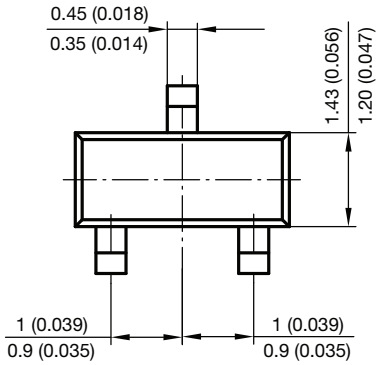


Fig. 2 - Pulse Waveform

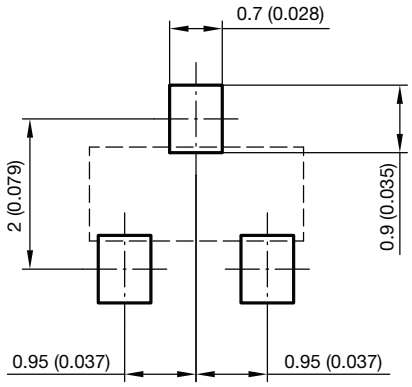
PACKAGE DIMENSIONS in millimeters (inches): **SOT-23**







Foot print recommendation:



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