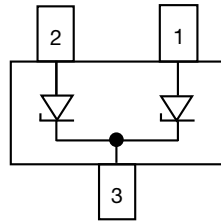


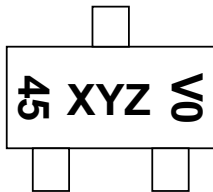
## Small Signal Zener Diodes



### LINKS TO ADDITIONAL RESOURCES



### MARKING (example only)



XYZ = type code  
 45 = working week  
 0 = year  
 V = Vishay

### FEATURES

- Silicon planar Zener diodes
- The Zener voltages are graded according to the international E24 standard. Standard Zener voltage tolerance is  $\pm 5\%$
- AEC-Q101 qualified available
- ESD capability acc. to AEC-Q101:  
human body model:  $> 8\text{ kV}$ ,  
machine model:  $> 800\text{ V}$
- Base P/N-E3 - RoHS-compliant, commercial grade
- Base P/N-HE3\_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)



**RoHS**  
COMPLIANT

PRIMARY CHARACTERISTICS		
PARAMETER	VALUE	UNIT
$V_Z$ range nom.	2.2 to 75	V
Test current $I_{ZT}$	2; 5	mA
$V_Z$ specification	Pulse current	
Circuit configuration	Single	

ORDERING INFORMATION					
DEVICE NAME	ORDERING CODE	ZENER VOLTAGE TOLERANCE	AEC-Q101 QUALIFIED	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
DZ23 series	DZ23C2V4-E3-08 to DZ23C75-E3-08	5 %	no	3000 (8 mm tape on 7" reel)	15 000
	DZ23C2V4-HE3_A-08 to DZ23C75-HE3_A-08	5 %	yes		
	DZ23C2V4-E3-18 to DZ23C75-E3-18	5 %	no	10 000 (8 mm tape on 13" reel)	10 000
	DZ23C2V4-HE3_A-18 to DZ23C75-HE3_A-18	5 %	yes		

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

ABSOLUTE MAXIMUM RATINGS					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Power dissipation	$R_{thJL} = 250\text{ K/W}$	$P_{tot}$	500	mW	
	On FR-4 board with recommended soldering footprint	$P_{tot}$	300	mW	
Thermal resistance junction to lead		$R_{thJL}$	250	K/W	
Thermal resistance junction to ambient	According to JEDEC® 51-3 on FR-4 board with recommended soldering footprint	$R_{thJA}$	420	K/W	
Junction temperature		$T_j$	150	°C	
Storage temperature range		$T_{stg}$	-65 to +150	°C	
Operating temperature range		$T_{op}$	-55 to +150	°C	



ELECTRICAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified)												
PART NUMBER	MARKING CODE	ZENER VOLTAGE RANGE			TEST CURRENT		REVERSE LEAKAGE CURRENT		DYNAMIC RESISTANCE f = 1 kHz		TEMPERATURE COEFFICIENT	
		V <sub>Z</sub> at I <sub>ZT1</sub>			I <sub>ZT1</sub>	I <sub>ZT2</sub>	I <sub>R</sub> at V <sub>R</sub>		Z <sub>Z</sub> at I <sub>ZT1</sub>	Z <sub>ZK</sub> at I <sub>ZT2</sub>	α <sub>VZ</sub> at I <sub>ZT1</sub>	
		V			mA		μA	V	Ω		10 <sup>-4</sup> /°C	
		MIN.	NOM.	MAX.			MAX.		MAX.	MAX.	MIN.	MAX.
DZ23C2V2	V77	2.09	2.2	2.31	5	1	100	1	120	600	-9	-4
DZ23C2V4	V78	2.28	2.4	2.52	5	1	50	1	100	600	-9	-4
DZ23C2V7	V41	2.57	2.7	2.84	5	1	20	1	83	500	-9	-4
DZ23C3V0	V42	2.85	3.0	3.15	5	1	10	1	95	500	-9	-3
DZ23C3V3	V43	3.14	3.3	3.47	5	1	5	1	95	500	-8	-3
DZ23C3V6	V44	3.42	3.6	3.78	5	1	5	1	90	500	-8	-3
DZ23C3V9	V45	3.71	3.9	4.10	5	1	3	1	90	500	-7	-3
DZ23C4V3	V46	4.09	4.3	4.52	5	1	3	1	90	500	-6	-1
DZ23C4V7	V47	4.47	4.7	4.94	5	1	3	2	78	500	-5	2
DZ23C5V1	V48	4.85	5.1	5.36	5	1	2	2	60	480	-3	4
							0.1	0.8				
DZ23C5V6	V49	5.32	5.6	5.88	5	1	1	2	40	400	-2	6
							0.1	1				
DZ23C6V2	V50	5.89	6.2	6.51	5	1	3	4	10	150	-1	7
							0.1	2				
DZ23C6V8	V51	6.46	6.8	7.14	5	1	2	4	8	80	2	7
							0.1	3				
DZ23C7V5	V52	7.13	7.5	7.88	5	1	0.1	5	7	50	3	7
DZ23C8V2	V53	7.79	8.2	8.61	5	1	0.1	6	7	50	4	7
DZ23C9V1	V54	8.65	9.1	9.56	5	1	0.1	7	10	50	5	8
DZ23C10	V55	9.50	10	10.50	5	1	0.1	7.5	15	70	5	8
DZ23C11	V56	10.45	11	11.55	5	1	0.1	8.5	20	70	5	9
DZ23C12	V57	11.40	12	12.60	5	1	0.1	9	20	90	6	9
DZ23C13	V58	12.40	13	13.65	5	1	0.1	10	25	110	7	9
DZ23C15	V59	14.25	15	15.60	5	1	0.05	11	30	110	7	9
DZ23C16	V60	15.30	16	16.80	5	1	0.05	12	40	170	8	9.5
DZ23C18	V61	17.10	18	18.90	5	1	0.05	14	45	170	8	9.5
DZ23C20	V62	19.00	20	21.00	5	1	0.05	15	50	220	8	10
DZ23C22	V63	20.90	22	23.10	5	1	0.05	17	55	220	8	10
DZ23C24	V64	22.80	24	25.20	5	1	0.05	18	70	220	8	10
DZ23C27	V65	25.65	27	28.35	2	0.5	0.05	20	80	250	8	10
DZ23C30	V66	28.50	30	31.50	2	0.5	0.05	22.5	80	250	8	10
DZ23C33	V67	31.35	33	34.65	2	0.5	0.05	25	80	250	8	10
DZ23C36	V68	34.20	36	37.80	2	0.5	0.05	27	87	250	8	10
DZ23C39	V69	37.05	39	40.95	2	0.5	0.05	29	87	300	10	12
DZ23C43	V70	40.85	43	45.15	2	0.5	0.05	32	97	375	10	12
DZ23C47	V71	44.65	47	49.35	2	0.5	0.05	35	97	375	10	12
DZ23C51	V72	48.45	51	53.55	2	0.5	0.05	38	100	400	10	12
DZ23C56	V73	53.20	56	58.80	2	0.5	0.05	42	135	425	9	11
DZ23C62	V74	58.90	62	65.10	2	0.5	0.05	46.5	150	450	9	12
DZ23C68	V75	64.60	68	71.40	2	0.5	0.05	51	200	475	10	12
DZ23C75	V76	71.25	75	78.75	2	0.5	0.05	56	250	500	10	12

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

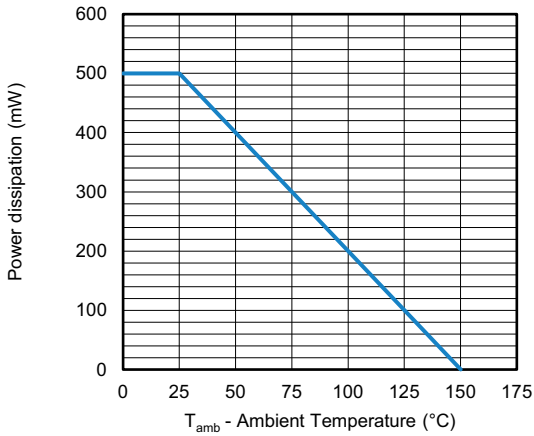


Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature

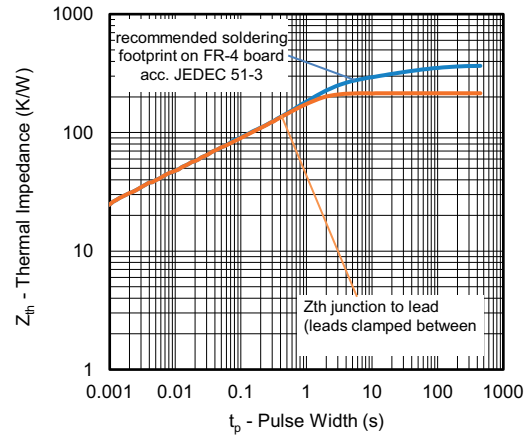
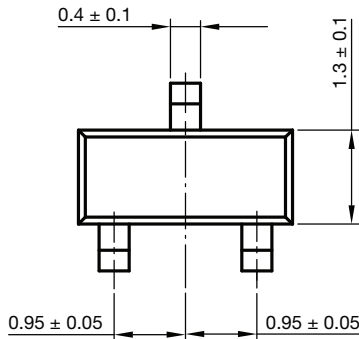
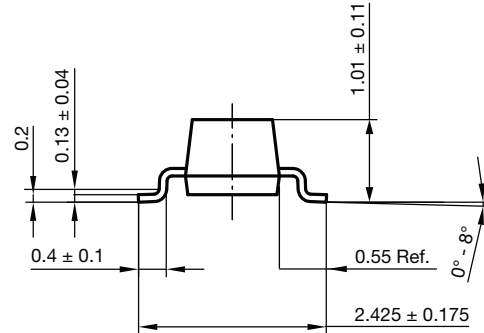
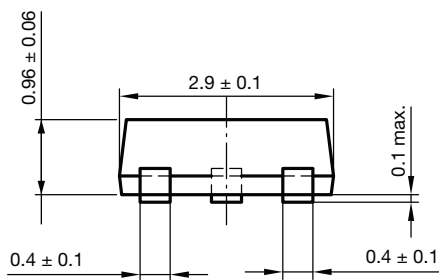
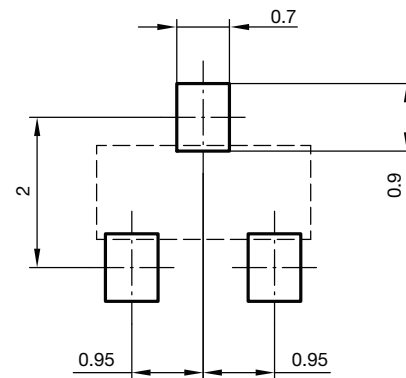


Fig. 2 - Thermal Impedance vs. Time

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



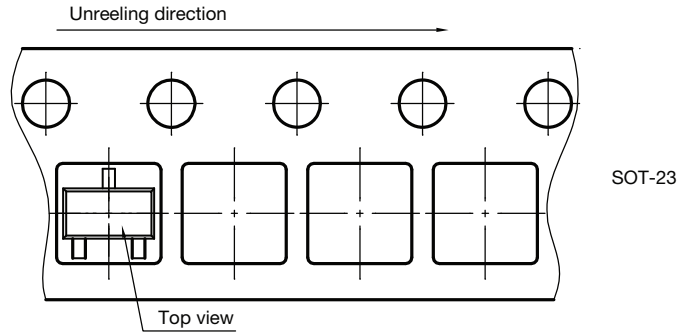
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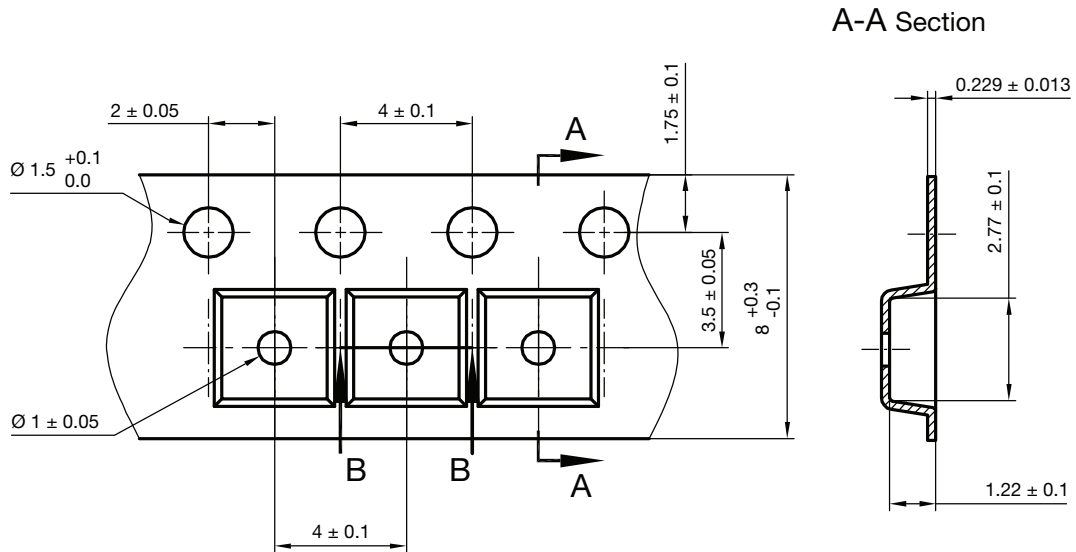


ORIENTATION IN CARRIER TAPE

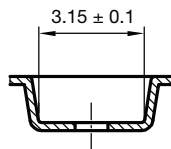


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CARRIER TAPE



B-B Section



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