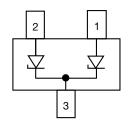


## **Small Signal Zener Diodes**



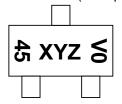


#### **LINKS TO ADDITIONAL RESOURCES**





### MARKING (example only)



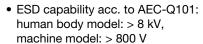
XYZ = type code 45 = working week 0 = year V = Vishay

PRIMARY CHARACTERISTICS								
PARAMETER	VALUE	UNIT						
V <sub>Z</sub> range nom.	2.2 to 75	V						
Test current I <sub>ZT</sub>	2; 5	mA						
V <sub>Z</sub> specification	Pulse current							
Circuit configuration	Common cathode							

#### **FEATURES**

- Silicon planar Zener diodes
- $\bullet$  The Zener voltages are graded according to the international E24 standard. Standard Zener voltage tolerance is  $\pm~5~\%$







AUTOMOTIVE GRADE



- 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 <a href="https://www.vishay.com/doc?99912"><u>www.vishay.com/doc?99912</u></a>

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	15 000				
	DZ23C2V4-HE3_A-08 to DZ23C75-HE3_A-08	5 %	yes	(8 mm tape on 7" reel)					
	DZ23C2V4-E3-18 to DZ23C75-E3-18	5 %	no	10 000	10 000				
	DZ23C2V4-HE3_A-18 to DZ23C75-HE3_A-18	5 %	yes	(8 mm tape on 13" reel)					

PACKAGE										
PACKAGE NAME	CKAGE 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 <sub>thJL</sub> = 250 K/W	P <sub>tot</sub>	500	mW					
	On FR-4 board with recommended soldering footprint	P <sub>tot</sub>	300	mW					
Thermal resistance junction to lead		R <sub>thJL</sub>	250	K/W					
Thermal resistance junction to ambient	According to JEDEC® 51-3 on FR-4 board with recommended soldering footprint	R <sub>thJA</sub>	420	K/W					
Junction temperature		Tj	150	°C					
Storage temperature range		T <sub>stg</sub>	-65 to +150	°C					
Operating temperature range		T <sub>op</sub>	-55 to +150	°C					



	MARKING	ZENER VOLTAGE RANGE			TEST CURRENT		REVERSE LEAKAGE CURRENT		DYNAMIC RESISTANCE f = 1 kHz		TEMPERATURE COEFFICIENT	
	CODE	V <sub>Z</sub> at I <sub>ZT1</sub>		I <sub>ZT1</sub>	I <sub>ZT1</sub> I <sub>ZT2</sub>		I <sub>R</sub> at V <sub>R</sub>		Z <sub>ZK</sub> at I <sub>ZT2</sub>	α <sub>VZ</sub> at I <sub>ZT1</sub> 10 <sup>-4</sup> /°C		
				mA		μA V			Ω			
		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	1			
DZ23C6V8	V51	6.46	6.8	7.14	5	1	2	4	8	80	2	7
							0.1	3	1			
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	V67	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
DZ23C33	V70	40.85	43	45.15	2	0.5	0.05	32	97	375	10	12
DZ23C43	V70	44.65	47	49.35	2	0.5	0.05	35	97	375	10	12
DZ23C47	V71	48.45	51	53.55	2	0.5	0.05	38	100	400	10	12
DZ23C51	V72	53.20		58.80	2	0.5	0.05			400		
			56					42 46.5	135		9	11
DZ23C62	V74	58.90	62	65.10	2	0.5	0.05	46.5	150	450		12
DZ23C68	V75	64.60	68	71.40	2	0.5	0.05	51	200	475	10	12

### TYPICAL CHARACTERISTICS (T<sub>amb</sub> = 25 °C, unless otherwise specified)

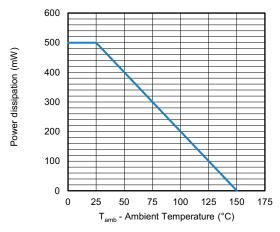


Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature

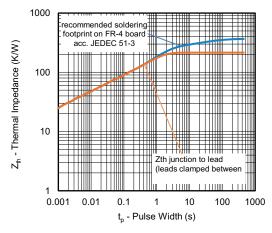
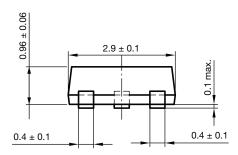
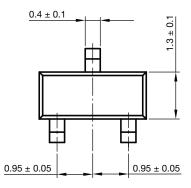


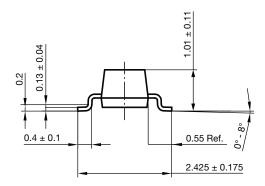
Fig. 2 - Thermal Impedance vs. Time

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

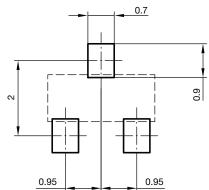




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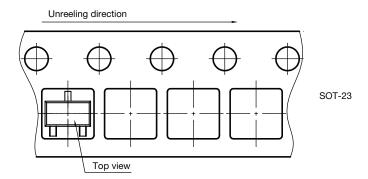


#### Foot print recommendation:





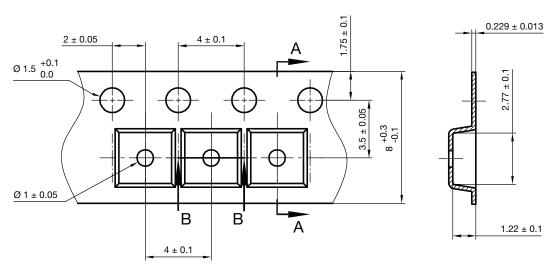
#### **ORIENTATION IN CARRIER TAPE**



S8-V-3929.01-006 (4) Created Date: 04.02.2010 Rev. 02 Date: 07.11.2022

#### **CARRIER TAPE**

### A-A Section



**B-B** Section



Document no.: S8-V-3929.01-005 (4) Created - Date: 04. Feb. 2010



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