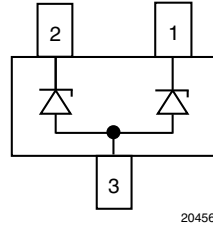


## Small Signal Zener Diodes

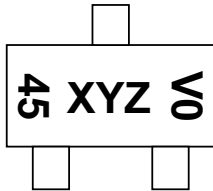


20456

### 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  $\pm 5\%$ , indicated by the "C" in the ordering code. Replace "C" with "B" for  $\pm 2\%$  tolerance.
- AEC-Q101 qualified available (part number on request)
- ESD capability acc. to AEC-Q101:  
human body model: > 8 kV,  
machine model: > 800 V
- Base P/N-G3 - green, commercial grade
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



### 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	Common anode	

### ORDERING INFORMATION

DEVICE NAME	ORDERING CODE	ZENER VOLTAGE TOLERANCE	AEC-Q101 QUALIFIED	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
AZ23-G series	AZ23C2V4-G3-08 to AZ23C75-G3-08	5 %	no	3000 (8 mm tape on 7" reel)	15 000
	AZ23B2V4-G3-08 to AZ23B75-G3-08	2 %	no		
	AZ23C2V4-G3-18 to AZ23C75-G3-18	5 %	no	10 000 (8 mm tape on 13" reel)	10 000
	AZ23B2V4-G3-18 to AZ23B75-G3-18	2 %	no		

### 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



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)												
PART NUMBER	MARKING CODE	ZENER VOLTAGE RANGE <sup>(1)</sup>			TEST CURRENT		REVERSE LEAKAGE CURRENT		DYNAMIC RESISTANCE $f = 1\text{ kHz}$		TEMPERATURE COEFFICIENT	
		$V_Z$ at $I_{ZT1}$			$I_{ZT1}$	$I_{ZT2}$	$I_R$ at $V_R$		$Z_Z$ at $I_{ZT1}$	$Z_{ZK}$ at $I_{ZT2}$	$\alpha_{VZ}$ at $I_{ZT1}$	
		V			mA		$\mu\text{A}$	V	$\Omega$		$10^{-4}/^{\circ}\text{C}$	
		MIN.	NOM.	MAX.			MAX.		MAX.	MAX.	MIN.	MAX.
AZ23C2V2-G	D77	2.09	2.2	2.31	5	1	100	1	120	600	-9	-4
AZ23C2V4-G	D78	2.28	2.4	2.52	5	1	50	1	100	600	-9	-4
AZ23C2V7-G	D41	2.57	2.7	2.84	5	1	20	1	83	500	-9	-4
AZ23C3V0-G	D42	2.85	3.0	3.15	5	1	10	1	95	500	-9	-3
AZ23C3V3-G	D43	3.14	3.3	3.47	5	1	5	1	95	500	-8	-3
AZ23C3V6-G	D44	3.42	3.6	3.78	5	1	5	1	90	500	-8	-3
AZ23C3V9-G	D45	3.71	3.9	4.10	5	1	3	1	90	500	-7	-3
AZ23C4V3-G	D46	4.09	4.3	4.52	5	1	3	1	90	500	-6	-1
AZ23C4V7-G	D47	4.47	4.7	4.94	5	1	3	2	78	500	-5	2
AZ23C5V1-G	D48	4.85	5.1	5.36	5	1	2	2	60	480	-3	4
AZ23C5V6-G	D49	5.32	5.6	5.88	5	1	0.1	0.8	40	400	-2	6
							1	2				
AZ23C6V2-G	D50	5.89	6.2	6.51	5	1	3	4	10	150	-1	7
							0.1	2				
AZ23C6V8-G	D51	6.46	6.8	7.14	5	1	2	4	8	80	2	7
							0.1	3				
AZ23C7V5-G	D52	7.13	7.5	7.88	5	1	0.1	5	7	50	3	7
AZ23C8V2-G	D53	7.79	8.2	8.61	5	1	0.1	6	7	50	4	7
AZ23C9V1-G	D54	8.65	9.1	9.56	5	1	0.1	7	10	50	5	8
AZ23C10-G	D55	9.50	10	10.50	5	1	0.1	7.5	15	70	5	8
AZ23C11-G	D56	10.45	11	11.55	5	1	0.1	8.5	20	70	5	9
AZ23C12-G	D57	11.40	12	12.60	5	1	0.1	9	20	90	6	9
AZ23C13-G	D58	12.40	13	13.65	5	1	0.1	10	25	110	7	9
AZ23C15-G	D59	14.25	15	15.60	5	1	0.05	11	30	110	7	9
AZ23C16-G	D60	15.30	16	16.80	5	1	0.05	12	40	170	8	9.5
AZ23C18-G	D61	17.10	18	18.90	5	1	0.05	14	45	170	8	9.5
AZ23C20-G	D62	19.00	20	21.00	5	1	0.05	15	50	220	8	10
AZ23C22-G	D63	20.90	22	23.10	5	1	0.05	17	55	220	8	10
AZ23C24-G	D64	22.80	24	25.20	5	1	0.05	18	70	220	8	10
AZ23C27-G	D65	25.65	27	28.35	2	0.5	0.05	20	80	250	8	10
AZ23C30-G	D66	28.50	30	31.50	2	0.5	0.05	22.5	80	250	8	10
AZ23C33-G	D67	31.35	33	34.65	2	0.5	0.05	25	80	250	8	10
AZ23C36-G	D68	34.20	36	37.80	2	0.5	0.05	27	87	250	8	10
AZ23C39-G	D69	37.05	39	40.95	2	0.5	0.05	29	87	300	10	12
AZ23C43-G	D70	40.85	43	45.15	2	0.5	0.05	32	97	375	10	12
AZ23C47-G	D71	44.65	47	49.35	2	0.5	0.05	35	97	375	10	12
AZ23C51-G	D72	48.45	51	53.55	2	0.5	0.05	38	100	400	10	12
AZ23C56-G	D73	53.20	56	58.80	2	0.5	0.05	42	135	425	9	11
AZ23C62-G	D74	58.90	62	65.10	2	0.5	0.05	46.5	150	450	9	12
AZ23C68-G	D75	64.60	68	71.40	2	0.5	0.05	51	200	475	10	12
AZ23C75-G	D76	71.25	75	78.75	2	0.5	0.05	56	250	500	10	12



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)												
PART NUMBER	MARKING CODE	ZENER VOLTAGE RANGE <sup>(1)</sup>			TEST CURRENT		REVERSE LEAKAGE CURRENT		DYNAMIC RESISTANCE $f = 1\text{ kHz}$		TEMPERATURE COEFFICIENT	
		$V_Z$ at $I_{ZT1}$			$I_{ZT1}$	$I_{ZT2}$	$I_R$ at $V_R$		$Z_Z$ at $I_{ZT1}$	$Z_{ZK}$ at $I_{ZT2}$	$\alpha_{VZ}$ at $I_{ZT1}$	
		V			mA		$\mu\text{A}$	V	$\Omega$		$10^{-4}/^{\circ}\text{C}$	
		MIN.	NOM.	MAX.			MAX.		MAX.	MAX.	MIN.	MAX.
AZ23B2V2-G	DG8	2.16	2.2	2.24	5	1	100	1	120	600	-9	-4
AZ23B2V4-G	DG9	2.35	2.4	2.45	5	1	50	1	100	600	-9	-4
AZ23B2V7-G	DD1	2.65	2.7	2.75	5	1	20	1	83	500	-9	-4
AZ23B3V0-G	DD2	2.94	3.0	3.06	5	1	10	1	95	500	-9	-3
AZ23B3V3-G	DD3	3.23	3.3	3.37	5	1	5	1	95	500	-8	-3
AZ23B3V6-G	DD4	3.53	3.6	3.67	5	1	5	1	90	500	-8	-3
AZ23B3V9-G	DD5	3.82	3.9	3.98	5	1	3	1	90	500	-7	-3
AZ23B4V3-G	DD6	4.21	4.3	4.39	5	1	3	1	90	500	-6	-1
AZ23B4V7-G	DD7	4.61	4.7	4.79	5	1	3	2	78	500	-5	2
AZ23B5V1-G	DD8	5.00	5.1	5.20	5	1	2	2	60	480	-3	4
AZ23B5V6-G	DD9	5.49	5.6	5.71	5	1	0.1	0.8	40	400	-2	6
AZ23B6V2-G	DE0	6.08	6.2	6.32	5	1	1	2	10	150	-1	7
AZ23B6V8-G	DE1	6.66	6.8	6.94	5	1	0.1	1	8	80	2	7
AZ23B7V5-G	DE2	7.35	7.5	7.65	5	1	2	4	7	50	3	7
AZ23B8V2-G	DE3	8.04	8.2	8.36	5	1	0.1	3	7	50	4	7
AZ23B9V1-G	DE4	8.92	9.1	9.28	5	1	0.1	2	10	50	5	8
AZ23B10-G	DE5	9.80	10	10.20	5	1	0.1	7	15	70	5	8
AZ23B11-G	DE6	10.78	11	11.22	5	1	0.1	7.5	20	70	5	9
AZ23B12-G	DE7	11.76	12	12.24	5	1	0.1	8.5	20	90	6	9
AZ23B13-G	DE8	12.74	13	13.26	5	1	0.1	9	25	110	7	9
AZ23B15-G	DE9	14.70	15	15.30	5	1	0.1	10	30	110	7	9
AZ23B16-G	DF0	15.68	16	16.32	5	1	0.05	11	40	170	8	9.5
AZ23B18-G	DF1	17.64	18	18.36	5	1	0.05	12	45	170	8	9.5
AZ23B20-G	DF2	19.60	20	20.40	5	1	0.05	14	50	220	8	10
AZ23B22-G	DF3	21.56	22	22.44	5	1	0.05	15	55	220	8	10
AZ23B24-G	DF4	23.52	24	24.48	5	1	0.05	17	70	220	8	10
AZ23B27-G	DF5	26.46	27	27.54	2	0.5	0.05	18	80	250	8	10
AZ23B30-G	DF6	29.40	30	30.60	2	0.5	0.05	20	80	250	8	10
AZ23B33-G	DF7	32.34	33	33.66	2	0.5	0.05	22.5	80	250	8	10
AZ23B36-G	DF8	35.28	36	36.72	2	0.5	0.05	25	80	250	8	10
AZ23B39-G	DF9	38.22	39	39.78	2	0.5	0.05	27	87	250	8	10
AZ23B43-G	DG0	42.14	43	43.86	2	0.5	0.05	29	87	300	10	12
AZ23B47-G	DG1	46.06	47	47.94	2	0.5	0.05	32	97	375	10	12
AZ23B51-G	DG2	49.98	51	52.02	2	0.5	0.05	35	97	375	10	12
AZ23B56-G	DG3	54.88	56	57.12	2	0.5	0.05	38	100	400	10	12
AZ23B62-G	DG5	60.76	62	63.24	2	0.5	0.05	42	135	425	9	11
AZ23B68-G	DG6	66.64	68	69.36	2	0.5	0.05	46.5	150	450	9	12
AZ23B75-G	DG7	73.50	75	76.50	2	0.5	0.05	51	200	475	10	12
AZ23B75-G	DG7	73.50	75	76.50	2	0.5	0.05	56	250	500	10	12

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

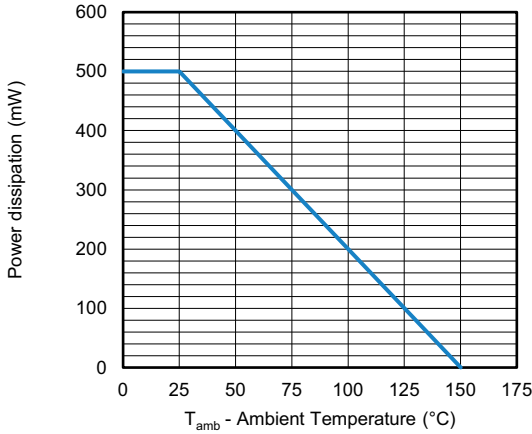


Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature

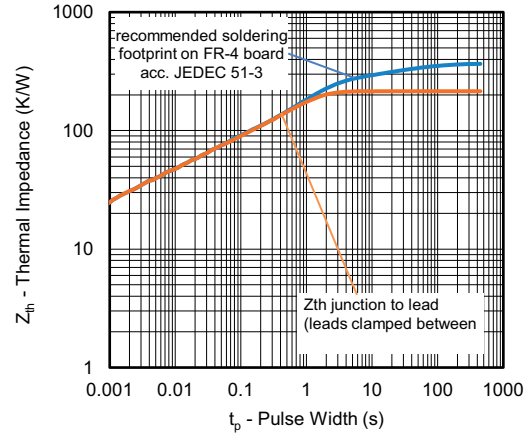
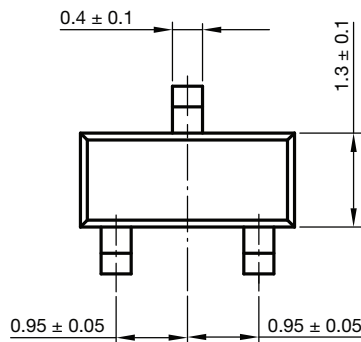
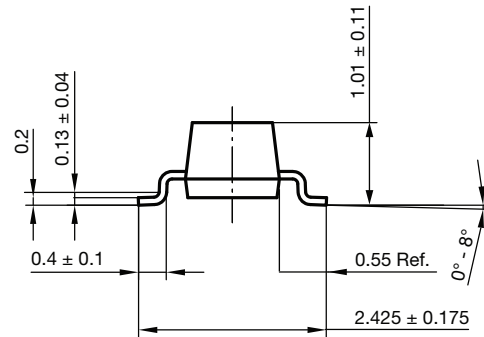
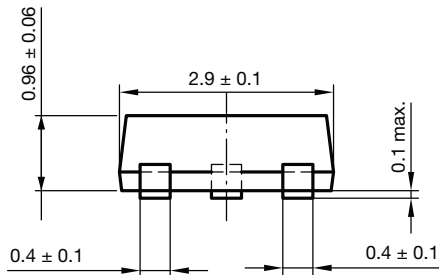
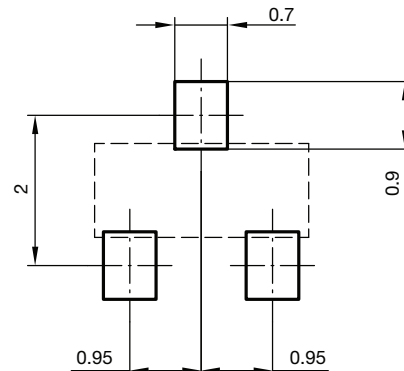


Fig. 2 - Thermal Impedance vs. Time

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



Foot print recommendation:



Document no.: S8-V-3929.01-009 (4)  
Created - Date: 18. Oct. 2021  
Rev. 01 - Date: 18. Jan. 2022



### ORIENTATION IN CARRIER TAPE



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

### CARRIER TAPE



B-B Section

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



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