Small Signal Zener Diodes, Dual

Features

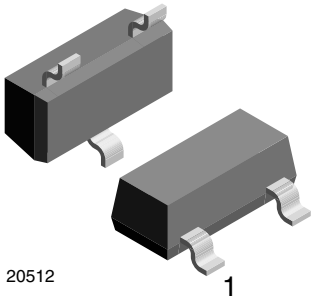
- Dual silicon planar Zener diodes, common anode
- The Zener voltages are graded according to the international E 24 standard
- The parameters are valid for both diodes in one case. ΔV_Z and ΔR_{zj} of the two diodes in one case is ≤ 5 %
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC

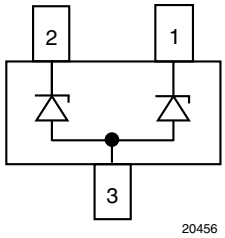
Pb-free

e3

RoHS COMPLIANT

GREEN (5-2008)**





Mechanical Data

Case: SOT23 plastic case

Weight: approx. 8.1 mg

Packaging codes/options:

GS18/10K per 13" reel, (8 mm tape), 10K/box

GS08/3K per 7" reel, (8 mm tape), 15K/box

Absolute Maximum Ratings

T_{amb} = 25 °C, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Power dissipation	Device on fiberglass substrate, see layout on page 6	P_{tot}	300	mW

Thermal Characteristics

T_{amb} = 25 °C, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Thermal resistance junction to ambient air	Device on fiberglass substrate, see layout on page 6	R_{thJA}	420	K/W
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	- 65 to + 150	°C

** Please see document “Vishay Green and Halogen-Free Definitions (5-2008)” www.vishay.com/doc?99902

Electrical Characteristics

Part number	Marking code	Zener voltage range [1]		Dynamic resistance		Test current	Temperature coefficient of Zener voltage		Reverse voltage
		V_Z at I_{ZT}		R_{zj} at I_{ZT} = 5 mA, f = 1 kHz	R_{zj} at I_{ZT} = 1 mA, f = 1 kHz	I_{ZT}	α_{VZ} at I_{ZT}		V_R at I_R = 100 nA
		V		Ω		mA	10^{-4}/°C		V
		min.	max.				min.	max.	
AZ23C2V7-V-G	D41	2.5	2.9	75 (< 83)	< 500	5	- 9	- 4	-
AZ23C3V0-V-G	D42	2.8	3.2	80 (< 95)	< 500	5	- 9	- 3	-
AZ23C3V3-V-G	D43	3.1	3.5	80 (< 95)	< 500	5	- 8	- 3	-
AZ23C3V6-V-G	D44	3.4	3.8	80 (< 95)	< 500	5	- 8	- 3	-
AZ23C3V9-V-G	D45	3.7	4.1	80 (< 95)	< 500	5	- 7	- 3	-
AZ23C4V3-V-G	D46	4	4.6	80 (< 95)	< 500	5	- 6	- 1	-
AZ23C4V7-V-G	D47	4.4	5	70 (< 78)	< 500	5	- 5	2	-
AZ23C5V1-V-G	D48	4.8	5.4	30 (< 60)	< 480	5	- 3	4	> 0.8
AZ23C5V6-V-G	D49	5.2	6	10 (< 40)	< 400	5	- 2	6	> 1
AZ23C6V2-V-G	D50	5.8	6.6	4.8 (< 10)	< 200	5	- 1	7	> 2
AZ23C6V8-V-G	D51	6.4	7.2	4.5 (< 8)	< 150	5	2	7	> 3
AZ23C7V5-V-G	D52	7	7.9	4 (< 7)	< 50	5	- 3	7	> 5
AZ23C8V2-V-G	D53	7.7	8.7	4.5 (< 7)	< 50	5	4	7	> 6
AZ23C9V1-V-G	D54	8.5	9.6	4.8 (< 10)	< 50	5	5	8	> 7
AZ23C10-V-G	D55	9.4	10.6	5.2 (< 15)	< 70	5	5	8	> 7.5
AZ23C11-V-G	D56	10.4	11.6	6 (< 20)	< 70	5	5	9	> 8.5
AZ23C12-V-G	D57	11.4	12.7	7 (< 20)	< 90	5	6	9	> 9
AZ23C13-V-G	D58	12.4	14.1	9 (< 25)	< 110	5	7	9	> 10
AZ23C15-V-G	D59	13.8	15.6	11 (< 30)	< 110	5	7	9	> 11
AZ23C16-V-G	D60	15.3	17.1	13 (< 40)	< 170	5	8	9.5	> 12
AZ23C18-V-G	D61	16.8	19.1	18 (< 50)	< 170	5	8	9.5	> 14
AZ23C20-V-G	D62	18.8	21.2	20 (< 50)	< 220	5	8	10	> 15
AZ23C22-V-G	D63	20.8	23.3	25 (< 55)	< 220	5	8	10	> 17
AZ23C24-V-G	D64	22.8	25.6	28 (< 80)	< 220	5	8	10	> 18
AZ23C27-V-G	D65	25.1	28.9	30 (< 80)	< 250	5	8	10	> 20
AZ23C30-V-G	D66	28	32	35 (< 80)	< 250	5	8	10	> 22.5
AZ23C33-V-G	D67	31	35	40 (< 80)	< 250	5	8	10	> 25
AZ23C36-V-G	D68	34	38	40 (< 90)	< 250	5	8	10	> 27
AZ23C39-V-G	D69	37	41	50 (< 90)	< 300	5	10	12	> 29
AZ23C43-V-G	D70	40	46	60 (< 100)	< 700	5	10	12	> 32
AZ23C47-V-G	D71	44	50	70 (< 100)	< 750	5	10	12	> 35
AZ23C51-V-G	D72	48	54	70 (< 100)	< 750	5	10	12	> 38

Note

[1] Tested with pulses t_p = 5 ms

Electrical Characteristics

Part number	Marking code	Zener voltage range [1]		Dynamic resistance		Test current	Temperature coefficient of Zener voltage		Reverse voltage
		V_Z at I_{ZT}		R_{zj} at I_{ZT} = 5 mA, f = 1 kHz	R_{zj} at I_{ZT} = 1 mA, f = 1 kHz	I_{ZT}	α_{VZ} at I_{ZT}		V_R at I_R = 100 nA
		V		Ω		mA	10^{-4}/°C		V
		min.	max.				min.	max.	
AZ23B2V7-V-G	D41	2.65	2.75	75 (< 83)	< 500	5	- 9	- 4	-
AZ23B3V0-V-G	D42	2.94	3.06	80 (< 95)	< 500	5	- 9	- 3	-
AZ23B3V3-V-G	D43	3.23	3.37	80 (< 95)	< 500	5	- 8	- 3	-
AZ23B3V6-V-G	D44	3.53	3.67	80 (< 95)	< 500	5	- 8	- 3	-
AZ23B3V9-V-G	D45	3.82	3.98	80 (< 95)	< 500	5	- 7	- 3	-
AZ23B4V3-V-G	D46	4.21	4.39	80 (< 95)	< 500	5	- 6	- 1	-
AZ23B4V7-V-G	D47	4.61	4.79	70 (< 78)	< 500	5	- 5	2	-
AZ23B5V1-V-G	D48	5	5.2	30 (< 60)	< 480	5	- 3	4	> 0.8
AZ23B5V6-V-G	D49	5.49	5.71	10 (< 40)	< 400	5	- 2	6	> 1
AZ23B6V2-V-G	D50	6.08	6.32	4.8 (< 10)	< 200	5	- 1	7	> 2
AZ23B6V8-V-G	D51	6.66	6.94	4.5 (< 8)	< 150	5	2	7	> 3
AZ23B7V5-V-G	D52	7.35	7.65	4 (< 7)	< 50	5	- 3	7	> 5
AZ23B8V2-V-G	D53	8.04	8.36	4.5 (< 7)	< 50	5	4	7	> 6
AZ23B9V1-V-G	D54	8.92	9.28	4.8 (< 10)	< 50	5	5	8	> 7
AZ23B10-V-G	D55	9.8	10.2	5.2 (< 15)	< 70	5	5	8	> 7.5
AZ23B11-V-G	D56	10.8	11.2	6 (< 20)	< 70	5	5	9	> 8.5
AZ23B12-V-G	D57	11.8	12.2	7 (< 20)	< 90	5	6	9	> 9
AZ23B13-V-G	D58	12.7	13.3	9 (< 25)	< 110	5	7	9	> 10
AZ23B15-V-G	D59	14.7	15.3	11 (< 30)	< 110	5	7	9	> 11
AZ23B16-V-G	D60	15.7	16.3	13 (< 40)	< 170	5	8	0.5	> 12
AZ23B18-V-G	D61	17.6	18.4	18 (< 50)	< 170	5	8	0.5	> 14
AZ23B20-V-G	D62	19.6	20.4	20 (< 50)	< 220	5	8	10	> 15
AZ23B22-V-G	D63	21.6	22.4	25 (< 55)	< 220	5	8	10	> 17
AZ23B24-V-G	D64	23.5	24.5	28 (< 80)	< 220	5	8	10	> 18
AZ23B27-V-G	D65	26.5	27.5	30 (< 80)	< 250	5	8	10	> 20
AZ23B30-V-G	D66	29.4	30.6	35 (< 80)	< 250	5	8	10	> 22.5
AZ23B33-V-G	D67	32.3	33.7	40 (< 80)	< 250	5	8	10	> 25
AZ23B36-V-G	D68	35.3	36.7	40 (< 90)	< 250	5	8	10	> 27
AZ23B39-V-G	D69	38.2	39.8	50 (< 90)	< 300	5	10	12	> 29
AZ23B43-V-G	D70	42.1	43.9	60 (< 100)	< 700	5	10	12	> 32
AZ23B47-V-G	D71	46.1	47.9	70 (< 100)	< 750	5	10	12	> 35
AZ23B51-V-G	D72	50	52	70 (< 100)	< 750	5	10	12	> 38

Note

[1] Tested with pulses t_p = 5 ms

Typical Characteristics

T_{amb} = 25 °C, unless otherwise specified

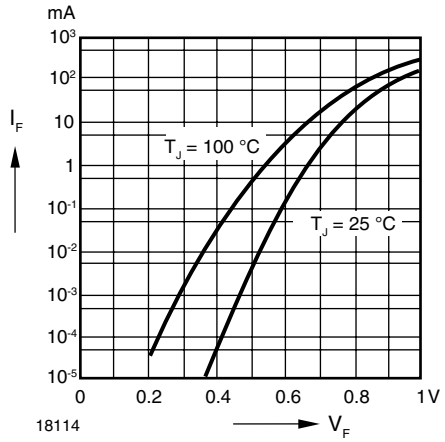


Figure 1. Forward characteristics

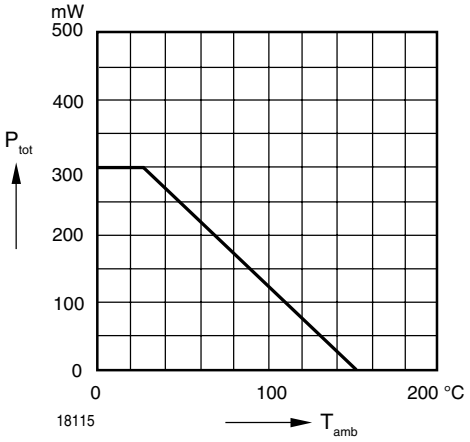


Figure 2. Admissible Power Dissipation vs. Ambient Temperature

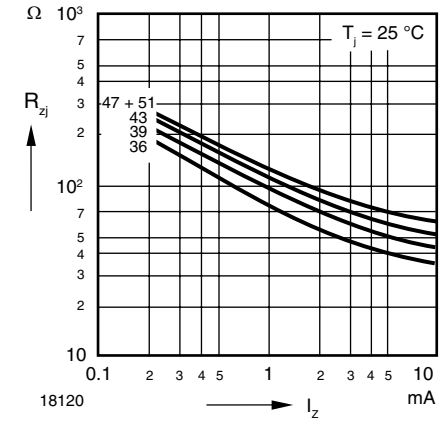


Figure 3. Dynamic Resistance vs. Zener Current

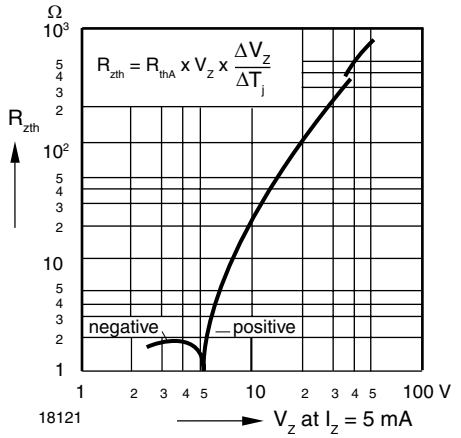


Figure 4. Thermal Differential Resistance vs. Zener Voltage

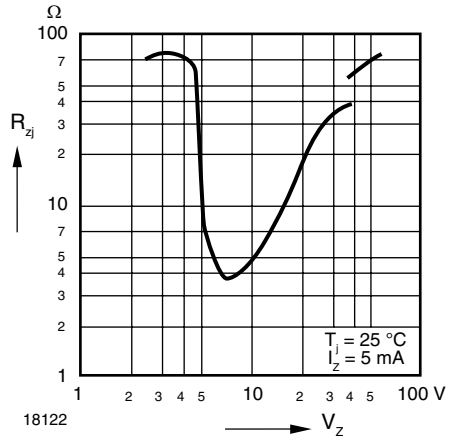


Figure 5. Dynamic Resistance vs. Zener Voltage

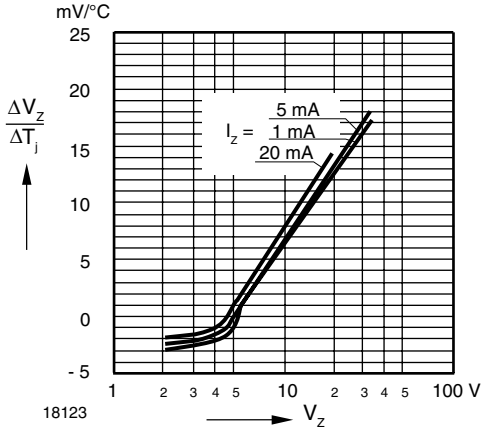


Figure 6. Temperature Dependence of Zener Voltage vs. Zener Voltage

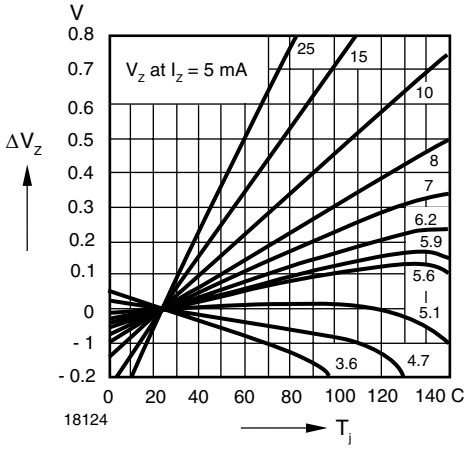


Figure 7. Change of Zener Voltage vs. Junction Temperature

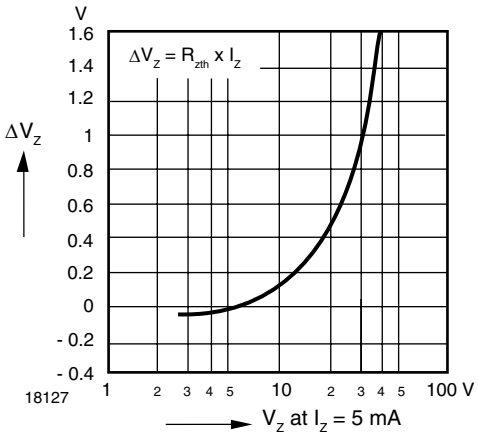


Figure 10. Change of Zener Voltage from Turn-on up to the Point of Thermal Equilibrium vs. Zener Voltage

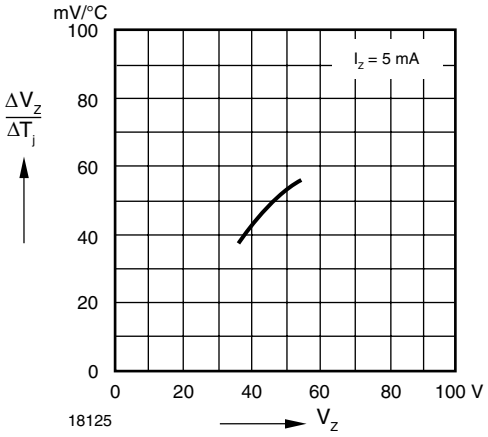


Figure 8. Temperature Dependence of Zener Voltage vs. Zener Voltage

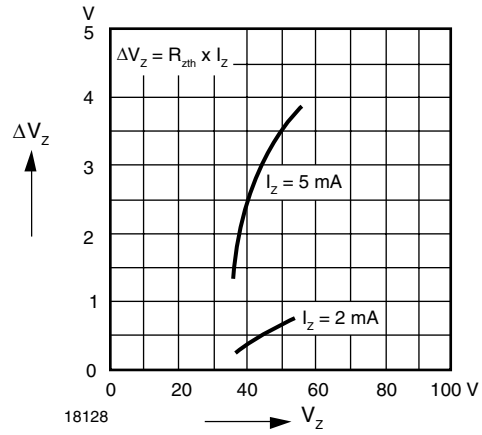


Figure 11. Change of Zener Voltage from Turn-on up to the Point of Thermal Equilibrium vs. Zener Voltage

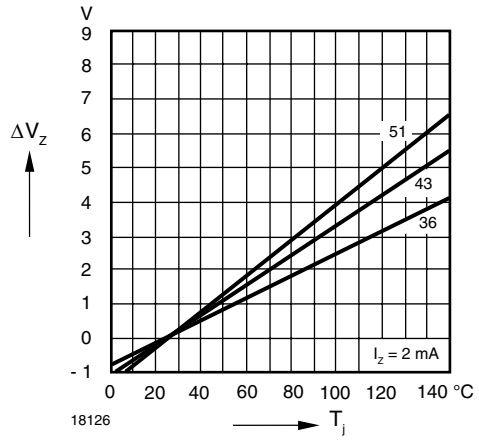


Figure 9. Change of Zener Voltage vs. Junction Temperature

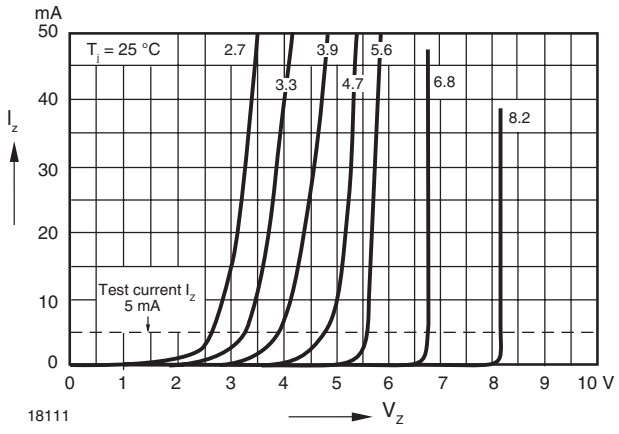


Figure 12. Breakdown Characteristics

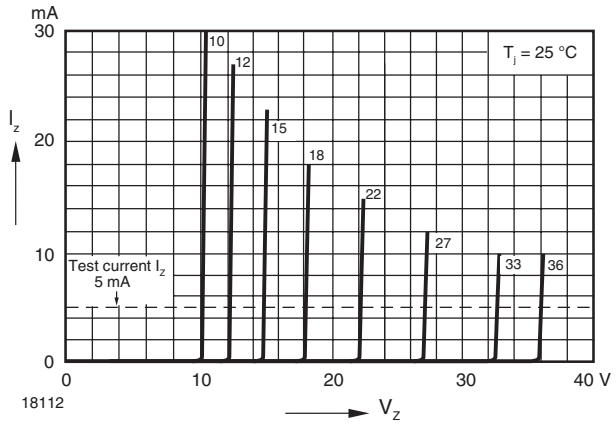


Figure 13. Breakdown Characteristics

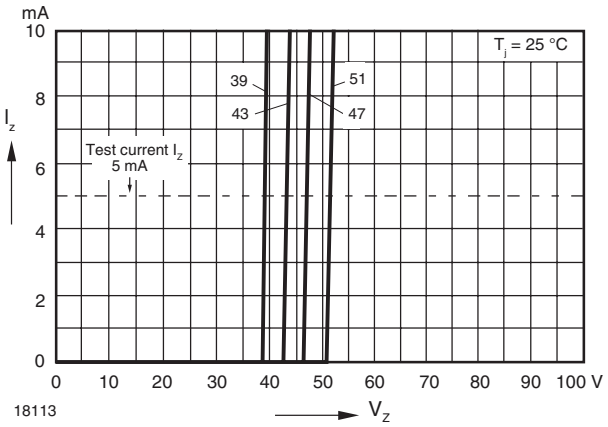
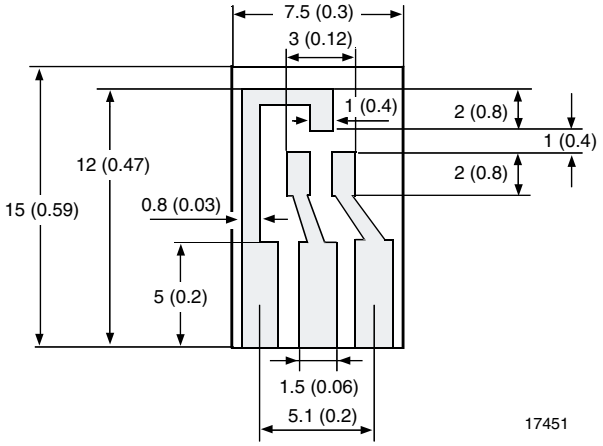


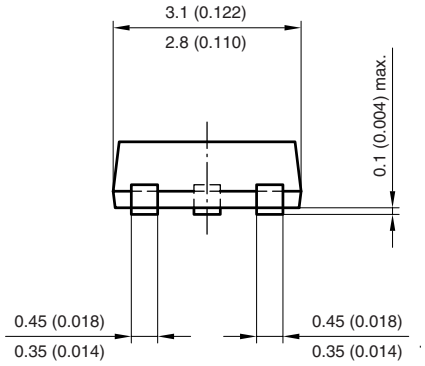
Figure 14. Breakdown Characteristics

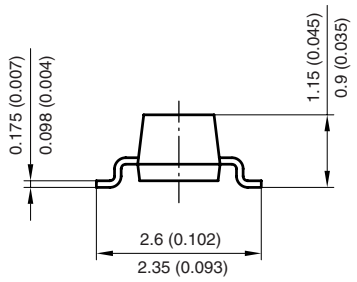
Layout for R_{thJA} test

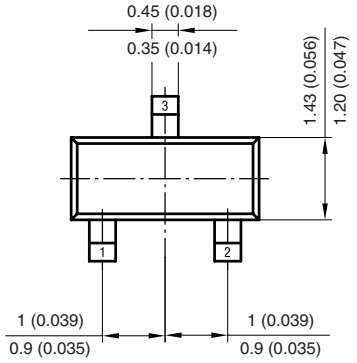
Thickness: Fiberglass 0.059 inches (1.5 mm)
Copper leads 0.012 inches (0.3 mm)



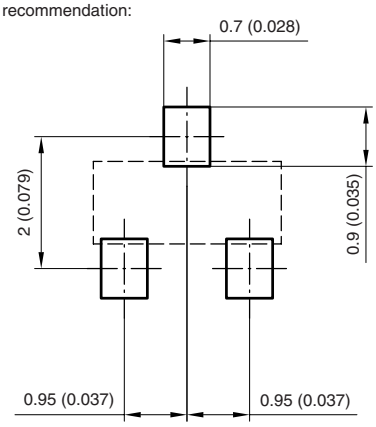
Package Dimensions in millimeters (inches): SOT23







Foot print recommendation:



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Rev. 7 - Date: 08.July.2004
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