GOOD-ARK SEMICONDUCTOR

BZT52CxxxS Series

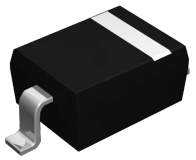
Surface Mount Zener Diodes

Vz Range 2.0V to 75V Power Dissipation 500mW

Features

- Ultra-small surface mount package
- Epoxy meets UL 94 V-0 flammability
- Moisture Sensitivity Level 1
- Low zener impedance
- Ideal for automated assembly

RoHS COMPLIANT



SOD-323

Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Forward Voltage[1] @ I_F=10mA	V_F	0.9	V
Power Dissipation[2]	P_D	500	mW
Power Dissipation[3]	P_D	200	mW
Thermal Resistance, Junction to Ambient[3]	$R_{\theta JA}$	625	°C/W
Operating Temperature Range	T_J	-65 to +150	°C
Storage Temperature Range	T_{STG}	-65 to +150	°C

Note:

1. Short duration test pulse used to minimize self-heating effect.
2. Device mounted on ceramic PCB: 7.6mm x 9.4mm x 0.87mm with pad areas 25mm².
3. Device mounted on FR4 PCB, recommended footprint.

Electrical Characteristics (T_A=25°C unless otherwise specified)

Type Number	Marking Code	Zener Voltage Range				Maximum Zener Impedance @f=1KHz			Maximum Reverse Current		Temperature Coefficient of Zener Voltage @I_{ZTC}=5mA[3] mV/°C	
		V_Z @I_{ZT} (V)			I_{ZT}	Z_{ZT} @I_{ZT}	Z_{ZK} @I_{ZK}	I_{ZK}	I_R	V_R		
		Nom	Min	Max	mA	Ω		mA	uA	V	Min	Max
BZT52C2V0S	WY	2.0	1.8	2.15	5	150	600	1	100	1	-3.5	0
BZT52C2V4S	WX	2.4	2.2	2.6	5	100	600	1	50	1	-3.5	0
BZT52C2V7S	W1	2.7	2.5	2.9	5	100	600	1	20	1	-3.5	0
BZT52C3V0S	W2	3	2.8	3.2	5	95	600	1	10	1	-3.5	0
BZT52C3V3S	W3	3.3	3.1	3.5	5	95	600	1	5	1	-3.5	0
BZT52C3V6S	W4	3.6	3.4	3.8	5	90	600	1	5	1	-3.5	0
BZT52C3V9S	W5	3.9	3.7	4.1	5	90	600	1	3	1	-3.5	0
BZT52C4V3S	W6	4.3	4	4.6	5	90	600	1	3	1	-3.5	0
BZT52C4V7S	W7	4.7	4.4	5	5	80	500	1	3	2	-3.5	0.2
BZT52C5V1S	W8	5.1	4.8	5.4	5	60	480	1	2	2	-2.7	1.2
BZT52C5V6S	W9	5.6	5.2	6	5	40	400	1	1	2	-2	2.5
BZT52C6V2S	WA	6.2	5.8	6.6	5	10	150	1	3	4	0.4	3.7
BZT52C6V8S	WB	6.8	6.4	7.2	5	15	80	1	2	4	1.2	4.5
BZT52C7V5S	WC	7.5	7	7.9	5	15	80	1	1	5	2.5	5.3
BZT52C8V2S	WD	8.2	7.7	8.7	5	15	80	1	0.7	5	3.2	6.2

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Type Number	Marking Code	Zener Voltage Range				Maximum Zener Impedance @f=1KHz			Reverse Current		Temperature Coefficient of Zener Voltage @I_{ZTC} =5mA[3] mV/°c	
		Vz @I_{ZT} (V)			I_{ZT}	Z_{ZT} @I_{ZT}	Z_{ZK} @I_{ZK}	I_{ZK}	I_R	V_R		
		Nom	Min	Max	mA	Ω		mA	uA	V	Min	Max
BZT52C9V1S	WE	9.1	8.5	9.6	5	15	100	1	0.5	6	3.8	7
BZT52C10S	WF	10	9.4	10.6	5	20	150	1	0.2	7	4.5	8
BZT52C11S	WG	11	10.4	11.6	5	20	150	1	0.1	8	5.4	9
BZT52C12S	WH	12	11.4	12.7	5	25	150	1	0.1	8	6	10
BZT52C13S	WI	13	12.4	14.1	5	30	170	1	0.1	8	7	11
BZT52C15S	WJ	15	13.8	15.6	5	30	200	1	0.1	10.5	9.2	13
BZT52C16S	WK	16	15.3	17.1	5	40	200	1	0.1	11.2	10.4	14
BZT52C18S	WL	18	16.8	19.1	5	45	225	1	0.1	12.6	12.4	16
BZT52C20S	WM	20	18.8	21.2	5	55	225	1	0.1	14	14.4	18
BZT52C22S	WN	22	20.8	23.3	5	55	250	1	0.1	15.4	16.4	20
BZT52C24S	WO	24	22.8	25.6	5	70	250	1	0.1	16.8	18.4	22
BZT52C27S	WP	27	25.1	28.9	2	80	300	0.5	0.1	18.9	21.4	25.3
BZT52C30S	WQ	30	28	32	2	80	300	0.5	0.1	21	24.4	29.4
BZT52C33S	WR	33	31	35	2	80	325	0.5	0.1	23.1	27.4	33.4
BZT52C36S	WS	36	34	38	2	90	350	0.5	0.1	25.2	30.4	37.4
BZT52C39S	WT	39	37	41	2	130	350	0.5	0.1	27.3	33.4	41.2
BZT52C43S	WU	43	40.0	46.0	2	100	700	1.0	0.1	32.0	10.0	12.0
BZT52C47S	WV	47	44.0	50.0	2	100	750	1.0	0.1	35.0	10.0	12.0
BZT52C51S	WW	51	48.0	54.0	2	100	750	1.0	0.1	38.0	10.0	12.0
BZT52C56S	XW	56	52.0	60.0	2	135	700	1.0	0.1	39.0	10.0	12.0
BZT52C62S	6E	62	58.0	66.0	2	200	1000	1.0	0.2	47.0	10.0	12.0
BZT52C68S	6F	68	64.0	72.0	2	250	1000	1.0	0.2	52.0	10.0	12.0
BZT52C75S	6H	75	70.0	79.0	2	300	1000	1.0	0.2	57.0	10.0	12.0

Note:

3. I_{ZTC} of BZT52C27S to BZT52C39S is 2mA

Ratings and Characteristic Curves

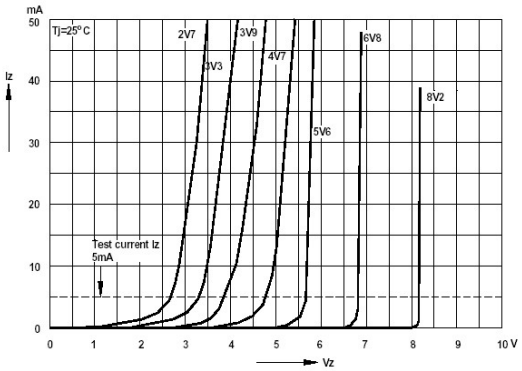


Figure 1. Breakdown Characteristics @ T_J=Constant (pulsed)

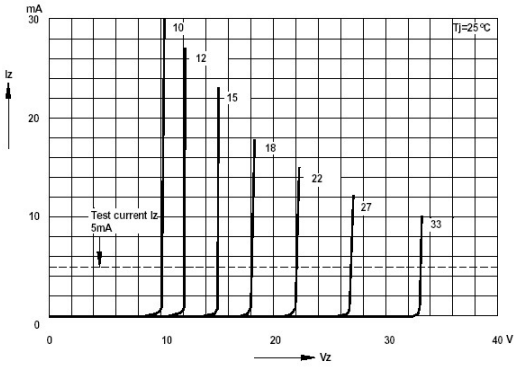


Figure 2. Breakdown Characteristics @T_J=Constant (pulsed)

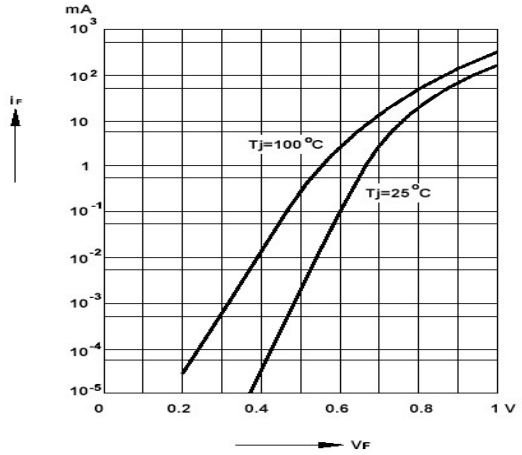


Figure 3. Forward Characteristics

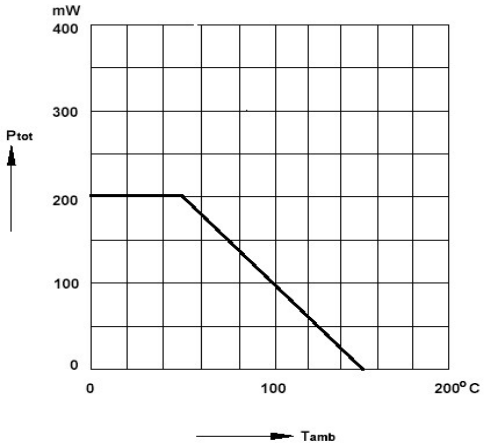


Figure 4. Admissible Power Dissipation vs. T_A

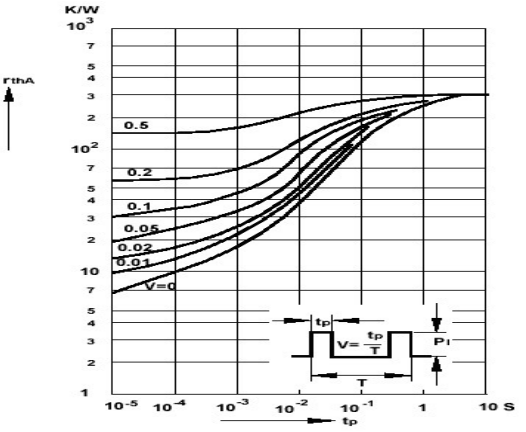


Figure 5. Pulse Thermal Resistance vs. Pulse Duration

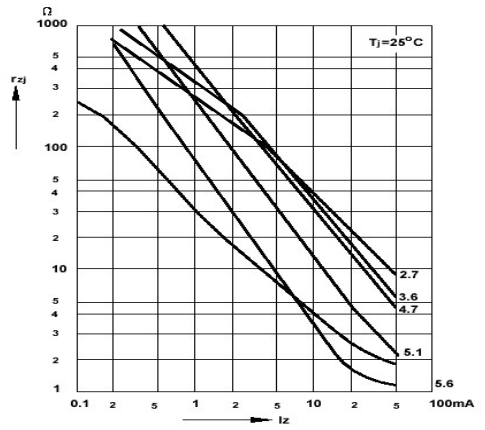


Figure 6. Dynamic Resistance vs. Zener Current

Ratings and Characteristic Curves

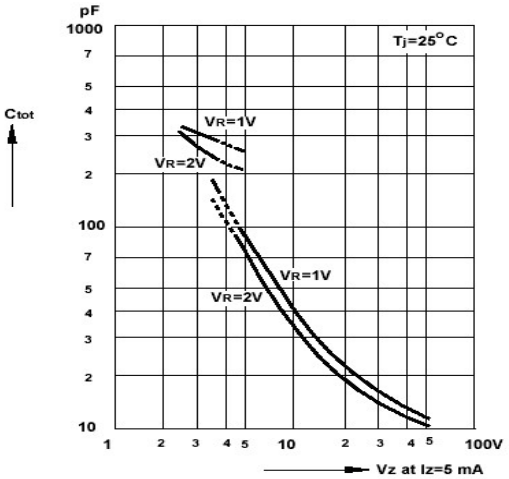


Figure 7. Capacitance vs. Zener Voltage

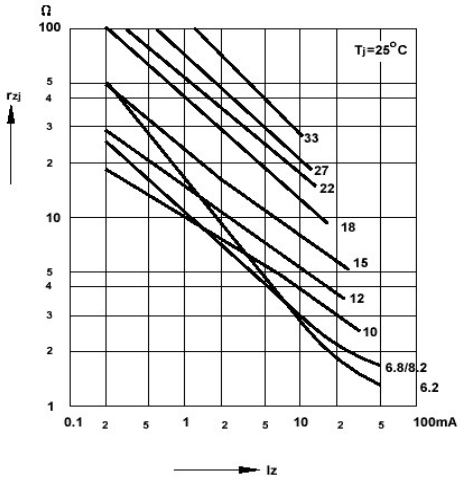


Figure 8. Dynamic Resistance vs. Zener Current

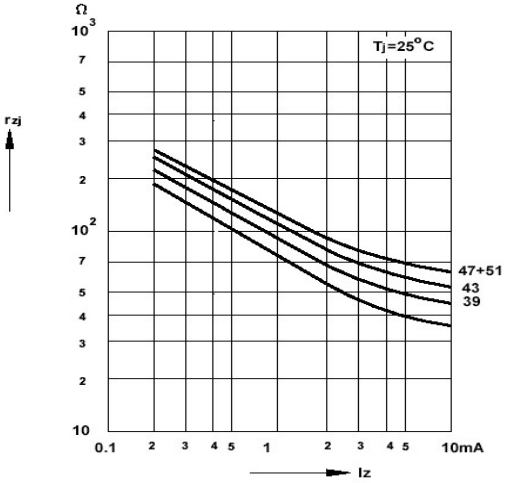


Figure 9. Dynamic Resistance vs. Zener Current

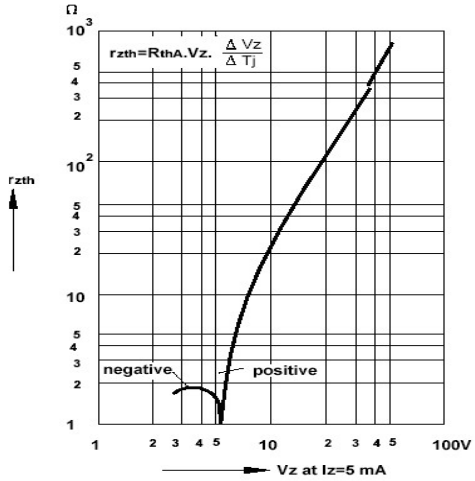


Figure 10. Thermal Differential Resistance vs. Zener Voltage

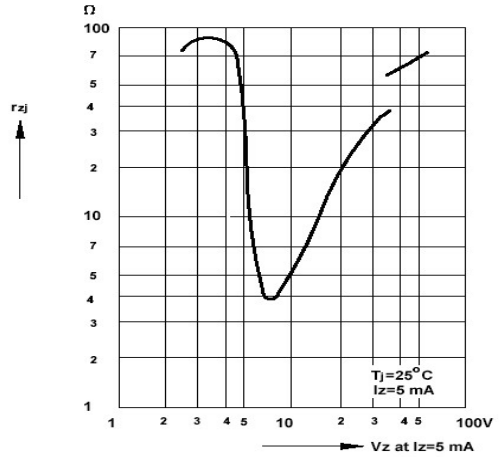


Figure 11. Dynamic Resistance vs. Zener Voltage

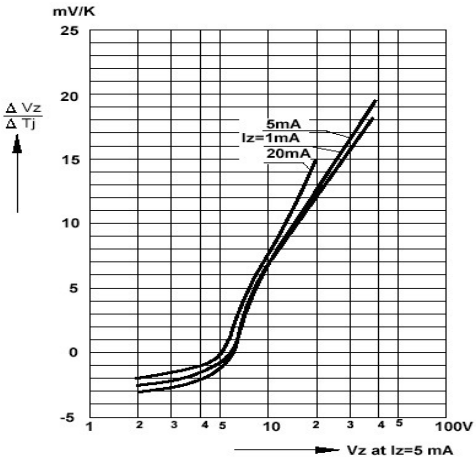


Figure 12. Temperature Dependence of Zener Voltage vs. Zener Voltage

Ratings and Characteristic Curves

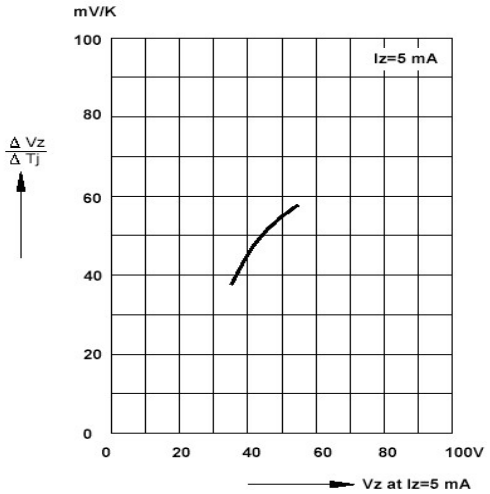


Figure 13. Temperature Dependence of Zener Voltage vs. Zener Voltage

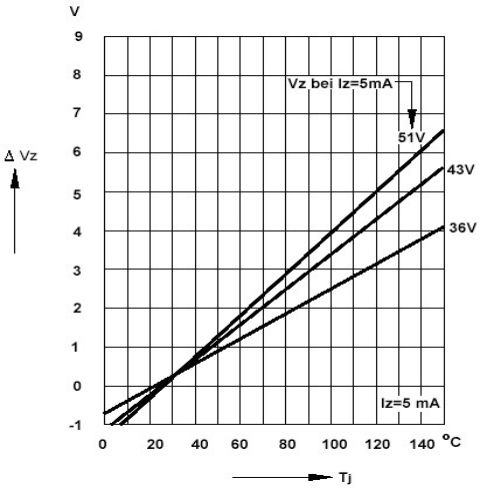


Figure 14. Change of Zener Voltage vs. T_J

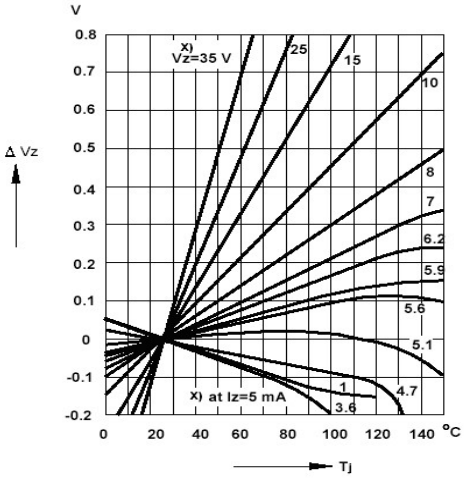


Figure 15. Change of Zener Voltage vs. T_J

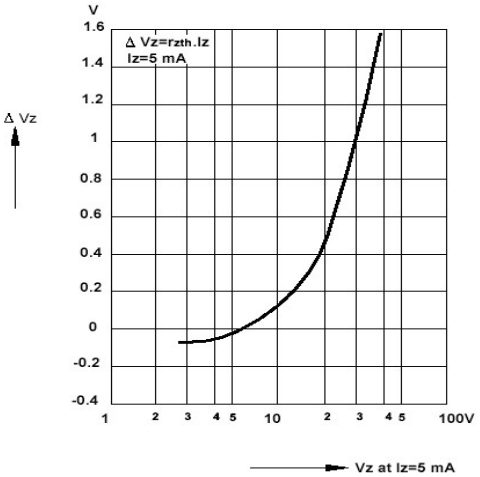
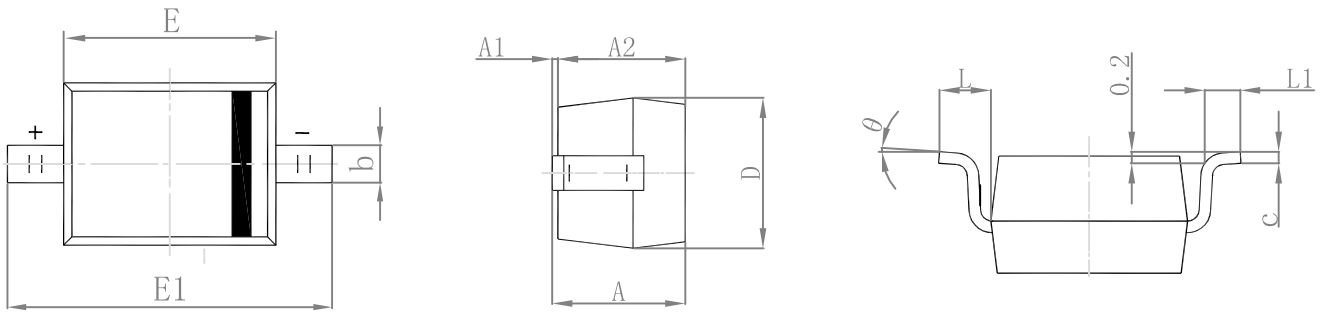


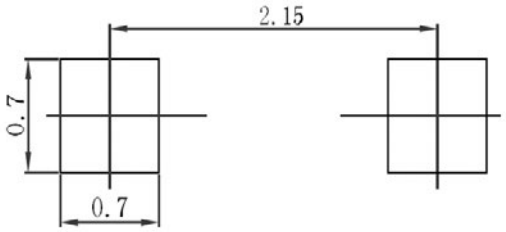
Figure 16. Change of Zener Voltge From Turn-on Up To The Point of Thermal Equilibrium vs. Zener Voltage

Package Outline Dimensions (SOD-323)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	-	1.000	-	0.039
A1	0.000	0.100	0.000	0.004
A2	0.800	0.900	0.031	0.035
b	0.250	0.350	0.010	0.014
c	0.080	0.150	0.003	0.006
D	1.200	1.400	0.047	0.055
E	1.600	1.800	0.063	0.071
E1	2.500	2.700	0.098	0.106
L	0.475 REF		0.019 REF	
L1	0.250	0.400	0.010	0.016
θ	0°	8°	0°	8°

Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.