GOOD-ARK
SEMICONDUCTOR

BZT52BxxxS Series

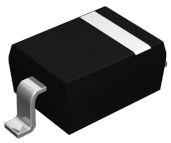
Surface Mount Zener Diodes

Vz Range: 2.4V to 75V Power Dissipation: 500mW

Features

- Ultra-small surface mount package
- Epoxy meets UL 94V-0 flammability
- Rating moisture sensitivity level 1
- 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	300	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)

Device	Marking	Zener Voltage Range				Maximum Zener Impedance			Maximum Reverse Current		Typical Temperature Coefficient @ I_{ZTC}=mV/°C		Test Current I_{ZTC}
		V_Z@I_{ZT}			I_{ZT}	Z_{ZT} @I_{ZT}	Z_{ZK} @I_{ZK}	I_{ZK}	I_R	V_R			
		Nom(V)	Min(V)	Max(V)	mA	Ω		mA	uA	V	Min	Max	mA
BZT52B2V4S	2WX	2.4	2.35	2.45	5	100	600	1.0	50	1.0	-3.5	0	5
BZT52B2V7S	2W1	2.7	2.65	2.75	5	100	600	1.0	20	1.0	-3.5	0	5
BZT52B3V0S	2W2	3.0	2.94	3.06	5	95	600	1.0	10	1.0	-3.5	0	5
BZT52B3V3S	2W3	3.3	3.23	3.37	5	95	600	1.0	5	1.0	-3.5	0	5
BZT52B3V6S	2W4	3.6	3.53	3.67	5	90	600	1.0	5	1.0	-3.5	0	5
BZT52B3V9S	2W5	3.9	3.82	3.98	5	90	600	1.0	3	1.0	-3.5	0	5
BZT52B4V3S	2W6	4.3	4.21	4.39	5	90	600	1.0	3	1.0	-3.5	0	5
BZT52B4V7S	2W7	4.7	4.61	4.79	5	80	500	1.0	3	2.0	-3.5	0.2	5
BZT52B5V1S	2W8	5.1	5.00	5.20	5	60	480	1.0	2	2.0	-2.7	1.2	5
BZT52B5V6S	2W9	5.6	5.49	5.71	5	40	400	1.0	1	2.0	-2.0	2.5	5
BZT52B6V2S	2WA	6.2	6.08	6.32	5	10	150	1.0	3	4.0	0.4	3.7	5
BZT52B6V8S	2WB	6.8	6.66	6.94	5	15	80	1.0	2	4.0	1.2	4.5	5

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Device	Marking	Zener Voltage Range				Maximum Zener Impedance			Maximum Reverse Current		Typical Temperature Coefficient@ I_{ZTC}=mV/°C		Test Current I_{ZTC}
		V_Z@I_{ZT}			I_{ZT}	Z_{ZT}@I_{ZT}	Z_{ZK}@I_{ZK}	I_{ZK}	I_R	V_R			
		Nom(V)	Min(V)	Max(V)	mA	Ω		mA	uA	V	Min	Max	mA
BZT52B7V5S	2WC	7.5	7.35	7.65	5	15	80	1	1	5	2.5	5.3	5
BZT52B8V2S	2WD	8.2	8.04	8.36	5	15	80	1	0.7	5	3.2	6.2	5
BZT52B9V1S	2WE	9.1	8.92	9.28	5	15	100	1	0.5	6	3.8	7	5
BZT52B10S	2WF	10	9.8	10.2	5	20	150	1	0.2	7	4.5	8	5
BZT52B11S	2WG	11	10.78	11.22	5	20	150	1	0.1	8	5.4	9	5
BZT52B12S	2WH	12	11.76	12.24	5	25	150	1	0.1	8	6	10	5
BZT52B13S	2WI	13	12.74	13.26	5	30	170	1	0.1	8	7	11	5
BZT52B15S	2WJ	15.0	14.70	15.30	5	30	200	1.0	0.1	10.5	9.2	13	5
BZT52B16S	2WK	16.0	15.68	16.32	5	40	200	1.0	0.1	11.2	10.4	14	5
BZT52B18S	2WL	18.0	17.64	18.36	5	45	225	1.0	0.1	12.6	12.4	16	5
BZT52B20S	2WM	20.0	19.60	20.40	5	55	225	1.0	0.1	14.0	14.4	18	5
BZT52B22S	2WN	22.0	21.56	22.44	5	55	250	1.0	0.1	15.4	16.4	20	5
BZT52B24S	2WO	24.0	23.52	24.48	5	70	250	1.0	0.1	16.8	18.4	22	5
BZT52B27S	2WP	27.0	26.46	27.54	2	80	300	0.5	0.1	18.9	21.4	25	2
BZT52B30S	2WQ	30.0	29.40	30.60	2	80	300	0.5	0.1	21.0	24.4	29.4	2
BZT52B33S	2WR	33.0	32.34	33.66	2	80	325	0.5	0.1	23.1	27.4	33.4	2
BZT52B36S	2WS	36.0	35.28	36.72	2	90	350	0.5	0.1	25.2	30.4	37.4	2
BZT52B39S	2WT	39.0	38.22	39.78	2	130	350	0.5	0.1	27.3	33.4	41.2	2
BZT52B43S	2WU	43.0	41.16	43.84	2	100	700	1.0	0.1	32.0	10.0	12.0	5
BZT52B47S	2WV	47	46.06	47.94	2	100	750	1.0	0.1	35.0	10.0	12.0	5
BZT52B51S	2WW	51	49.98	52.02	2	100	750	1.0	0.1	38.0	10.0	12.0	5
BZT52B56S	2XW	56	54.88	57.12	2	135	700	1.0	0.1	39.0	10.0	12.0	5
BZT52B62S	2X3	62	60.45	63.55	2	225	1400	0.25	0.1	47	10.0	12.0	5
BZT52B68S	2X4	68	66.3	69.7	2	240	1600	0.25	0.1	52	10.0	12.0	5
BZT52B75S	2X5	75	73.13	76.87	2	265	1700	0.25	0.1	56	10.0	12.0	5

Typical Characteristic Curves

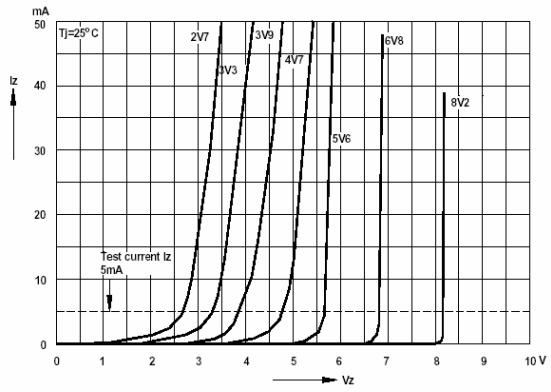

Figure 1. Breakdown Characteristics @ T_J=Constant (Pulsed)

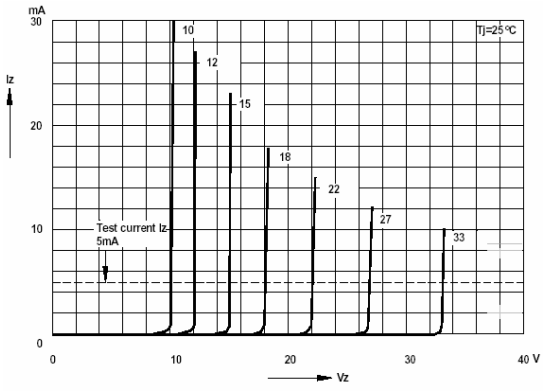

Figure 2. Breakdown Characteristics @ T_J=Constant (Pulsed)

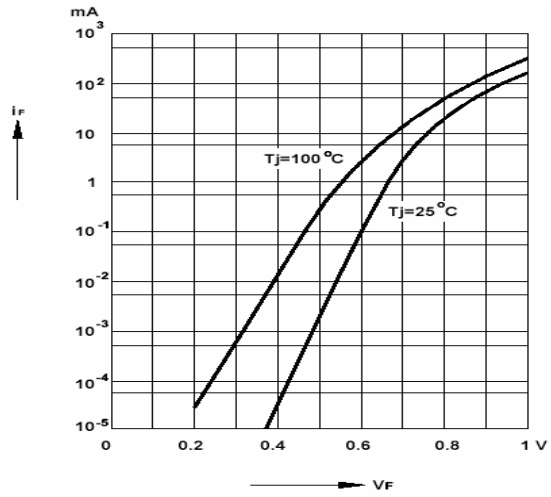

Figure 3. Forward Characteristics

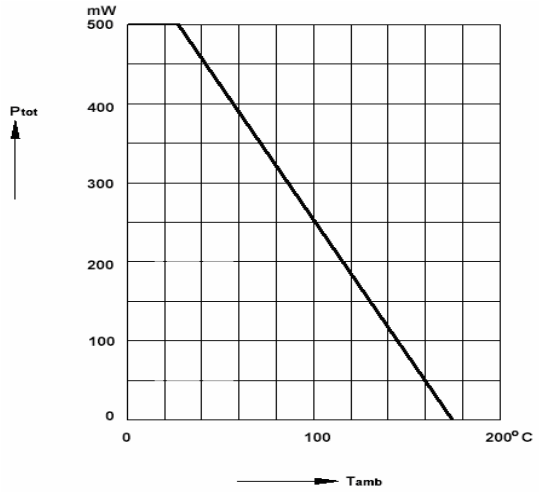

Figure 4. Admissible Power Dissipation vs. T_A

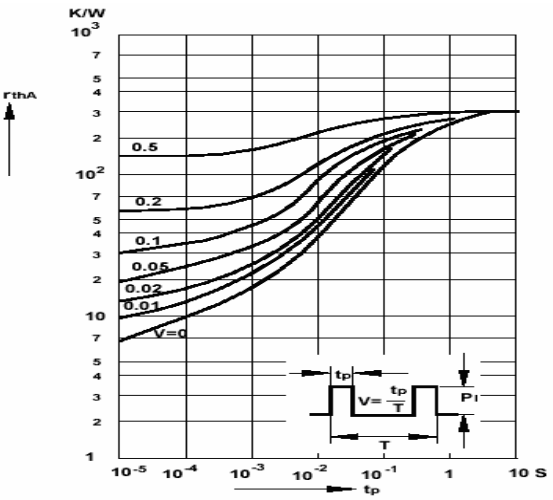

Figure 5. Pulse Thermal Resistance vs. Pulse Duration

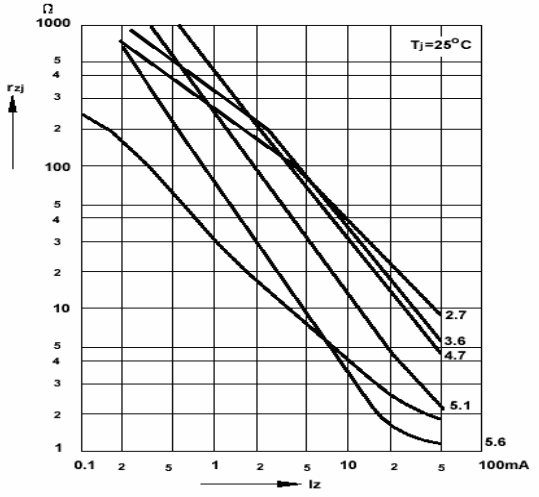

Figure 6. Dynamic Resistance vs. Zener Current

Typical Characteristic Curves

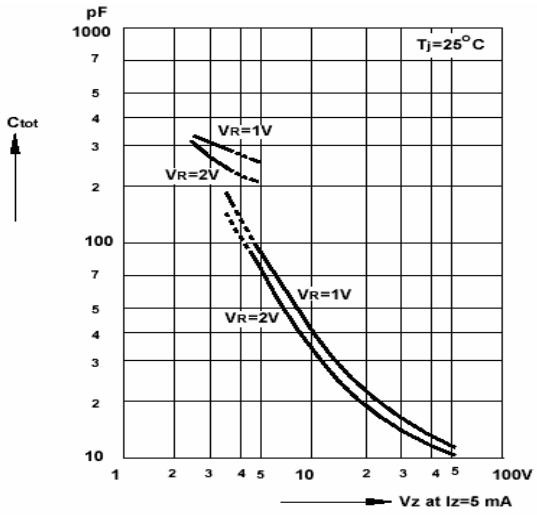

Figure 7. Capacitance vs. Zener Voltage

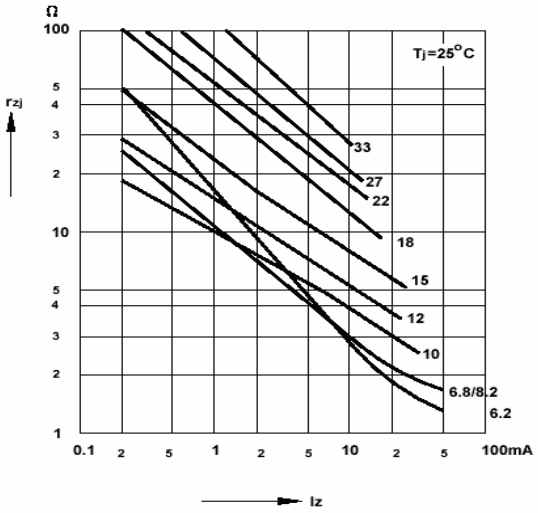

Figure 8. Dynamic Resistance vs. Zener Current

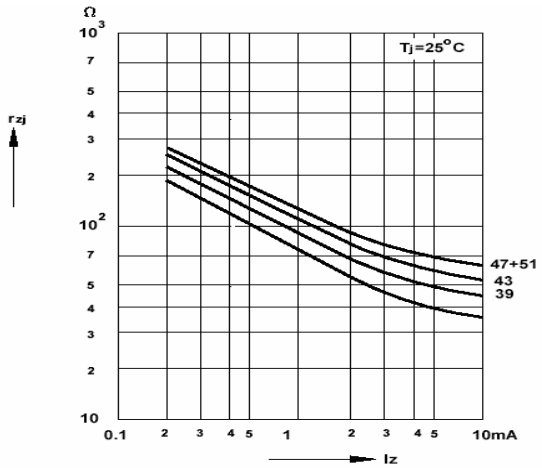

Figure 9. Dynamic Resistance vs. Zener Current

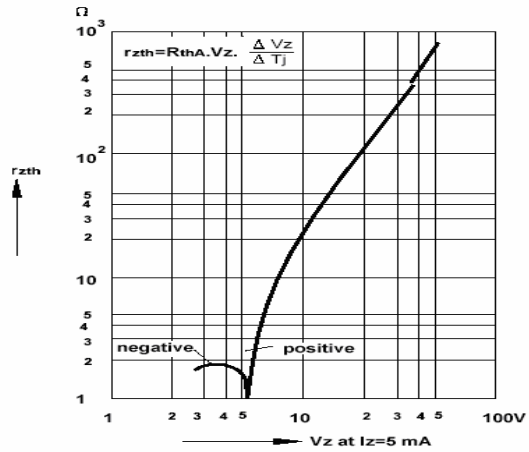

Figure 10. Thermal Differential Resistance vs. Zener Voltage

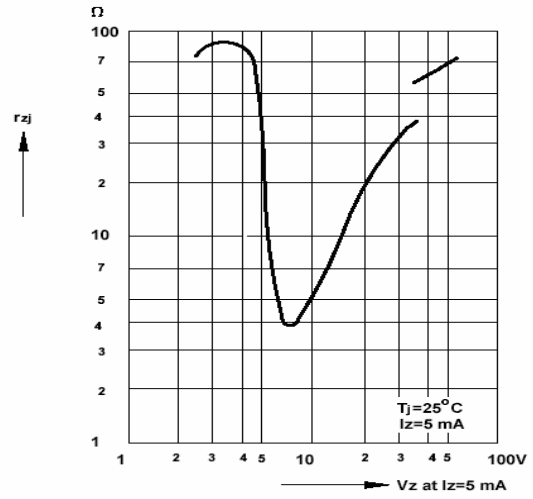

Figure 11. Dynamic Resistance vs. Zener Voltage

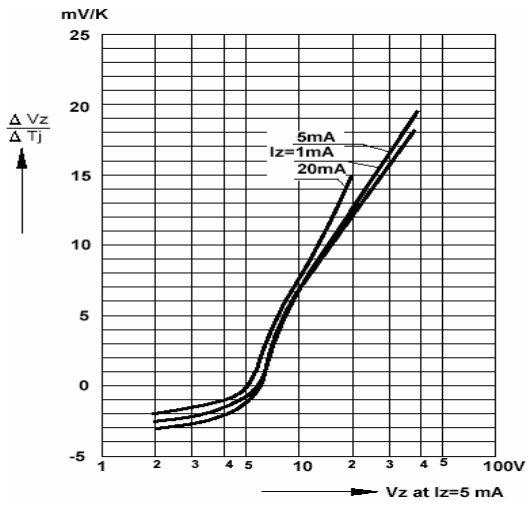

Figure 12. Temperature Dependence of Zener Voltage vs. Zener Voltage

Typical Characteristic Curves

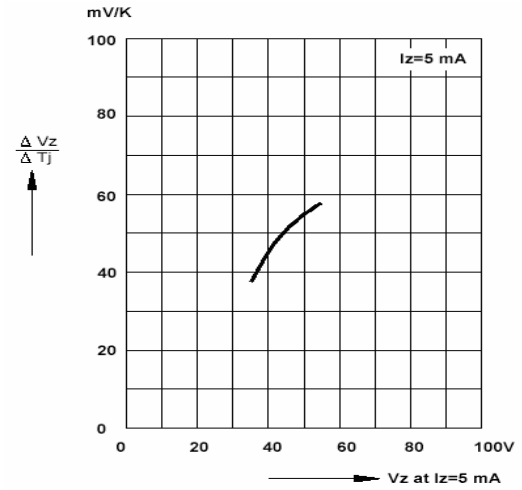

Figure 13. Temperature Dependence of Zener Voltage vs. Zener Voltage

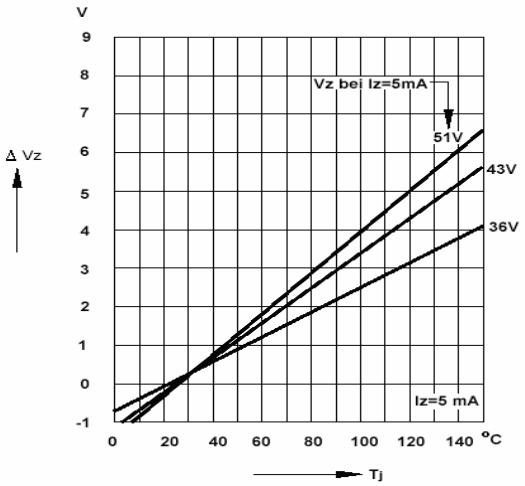

Figure 14. Change of Zener Voltage vs. T_J

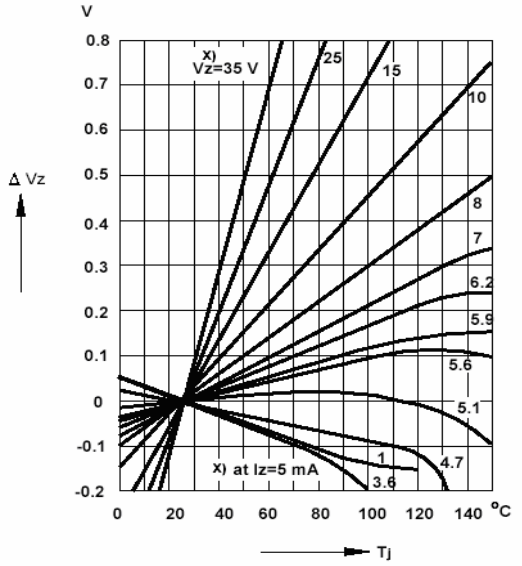

Figure 15. Change of Zener Voltage vs. T_J

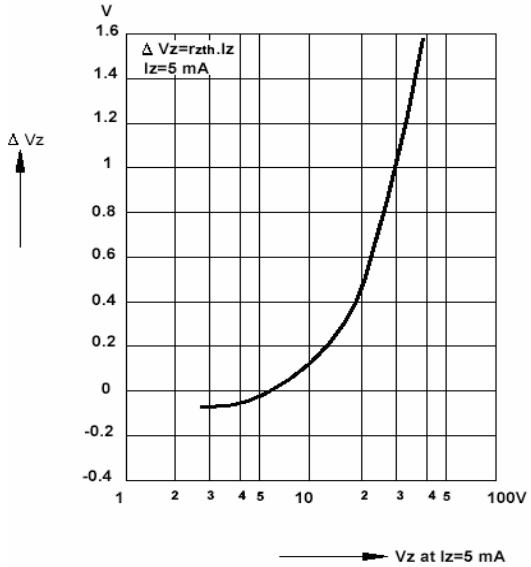

Figure 16. Change of Zener Voltage from Turn-on Up To The Point of Thermal Equilibrium vs. Zener Voltage

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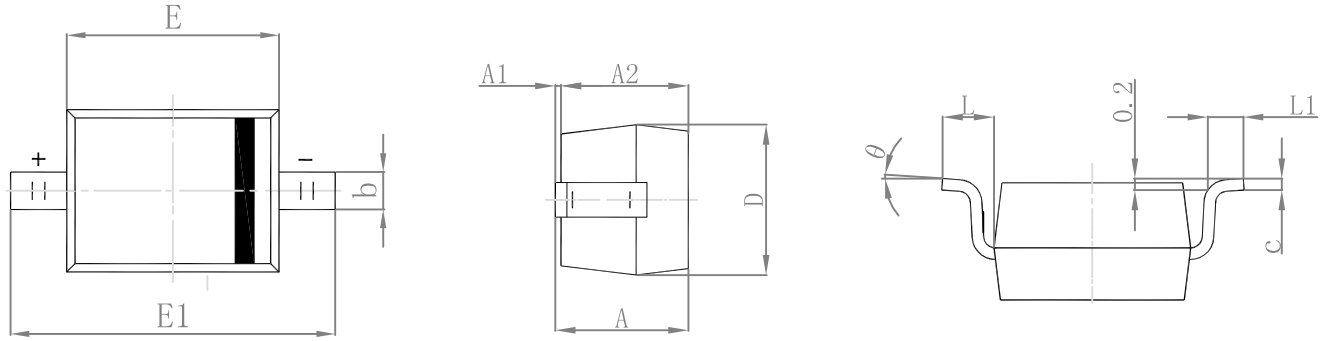
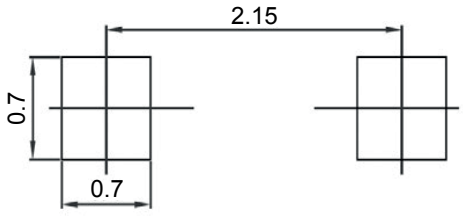
Package Outline Dimensions (SOD-323)



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°

Recommended Pad Layout



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

Order Information

Device	Package	Packaging	SPQ
BZT52BxxxS	SOD-323	Tape & Reel	3,000 Pcs / Reel