GOOD-ARK
SEMICONDUCTOR

BZT52BxxxS Series

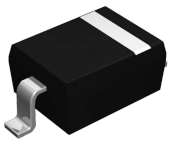
Surface Mount Zener Diodes

Vz Range: 2.4V to 43V Power Dissipation: 500mW

Features

- Ultra-Small Surface Mount Package
- Epoxy Meets UL 94 V-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 Coefficent @ 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 Coefficent @ 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	10.5	9.2	13	5
BZT52B16S	2WK	16.0	15.68	16.32	5	40	200	1.0	0	11.2	10.4	14	5
BZT52B18S	2WL	18.0	17.64	18.36	5	45	225	1.0	0	12.6	12.4	16	5
BZT52B20S	2WM	20.0	19.60	20.40	5	55	225	1.0	0	14.0	14.4	18	5
BZT52B22S	2WN	22.0	21.56	22.44	5	55	250	1.0	0	15.4	16.4	20	5
BZT52B24S	2WO	24.0	23.52	24.48	5	70	250	1.0	0	16.8	18.4	22	5
BZT52B27S	2WP	27.0	26.46	27.54	2	80	300	0.5	0	18.9	21.4	25	2
BZT52B30S	2WQ	30.0	29.40	30.60	2	80	300	0.5	0	21.0	24.4	29.4	2
BZT52B33S	2WR	33.0	32.34	33.66	2	80	325	0.5	0	23.1	27.4	33.4	2
BZT52B36S	2WS	36.0	35.28	36.72	2	90	350	0.5	0	25.2	30.4	37.4	2
BZT52B39S	2WT	39.0	38.22	39.78	2	130	350	0.5	0	27.3	33.4	41.2	2
BZT52B43S	2WU	43.0	41.16	43.84	2	100	700	1.0	0	32.0	10.0	12.0	5

Typical Characteristic Curves

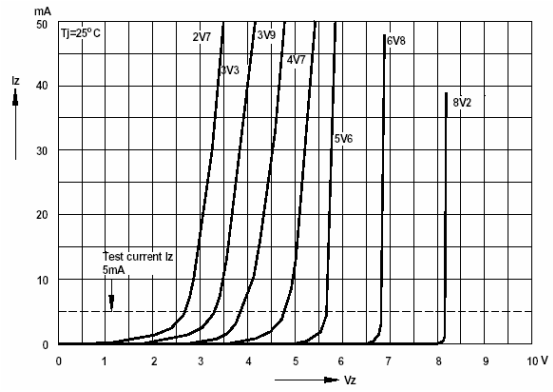

Fig 1. Breakdown Characteristics@ T_J=Constant (pulsed)

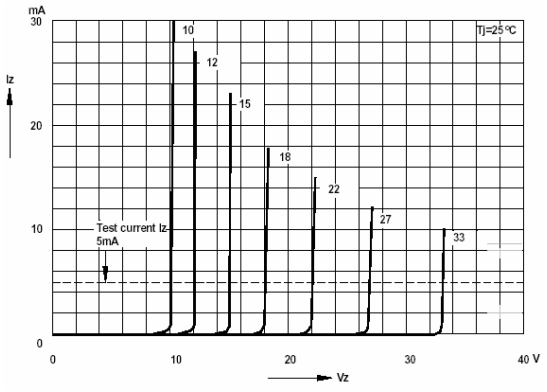

Fig 2. Breakdown Characteristics@T_J=Constant (pulsed)

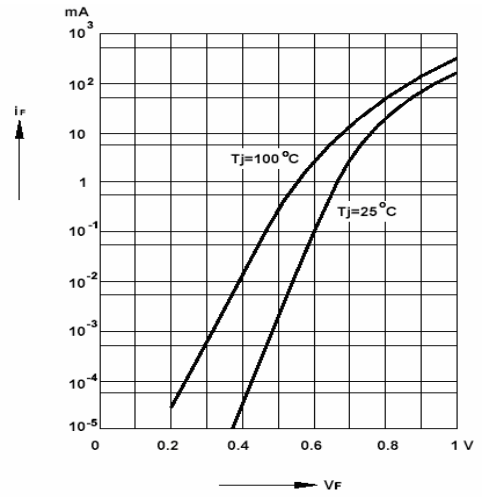

Fig 3. Forward Characteristics

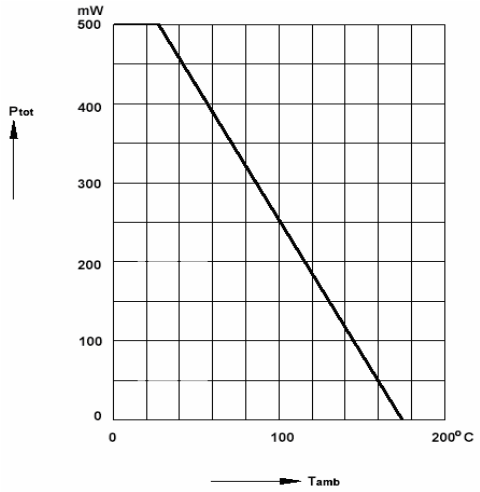

Fig 4. Admissible Power Dissipation vs T_A

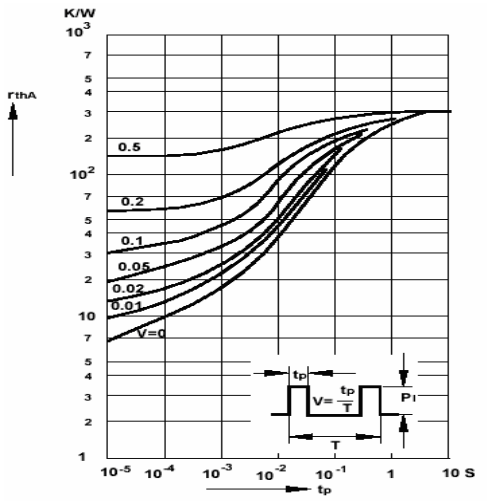

Fig 5. Pulse Thermal Resistance vs Pulse Duration

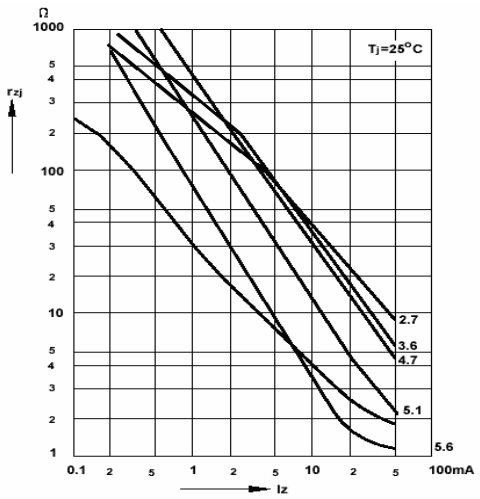

Fig 6. Dynamic Resistance vs Zener Current

Typical Characteristic Curves

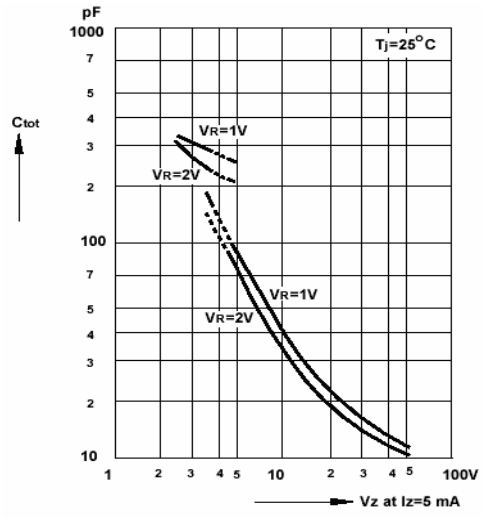

Fig 7. Capacitance vs Zener Voltage

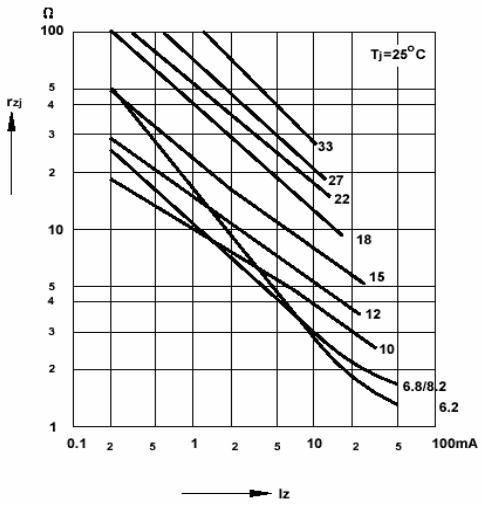

Fig 8. Dynamic Resistance vs Zener Current

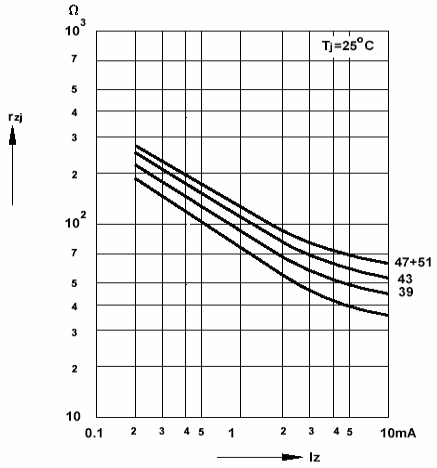

Fig 9. Dynamic Resistance vs Zener Current

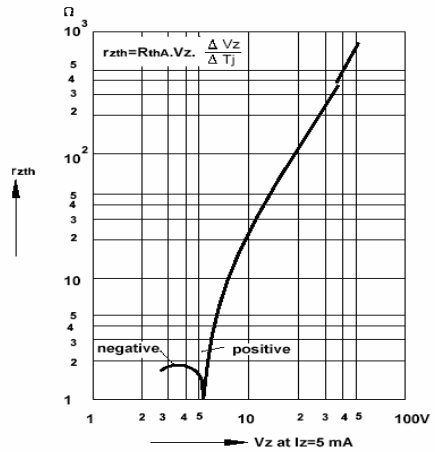

Fig 10. Thermal Differential Resistance vs Zener Voltage

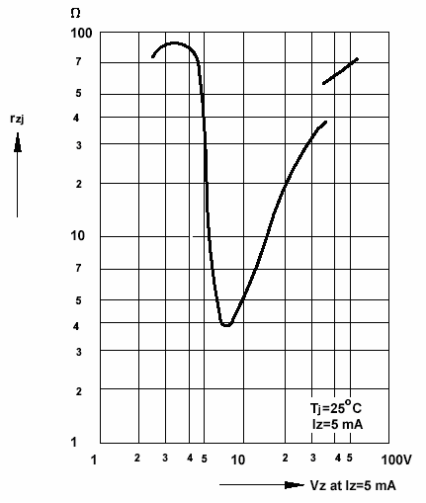

Fig 11. Dynamic Resistance vs Zener Voltage

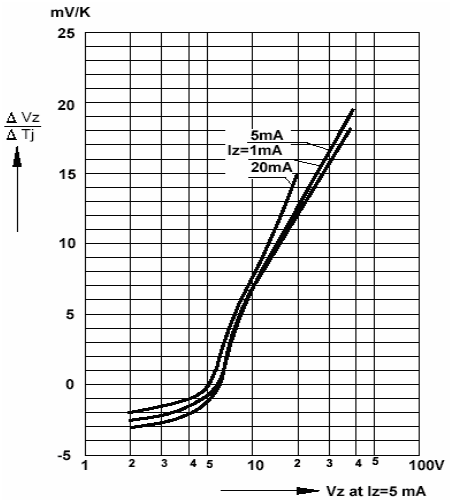

Fig 12. Temperature Dependence of Zener Voltage vs Zener Voltage

Typical Characteristic Curves

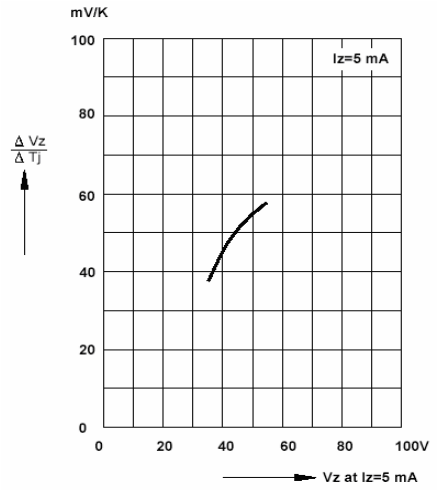

Fig 13. Temperature Dependence of Zener Voltage vs Zener Voltage

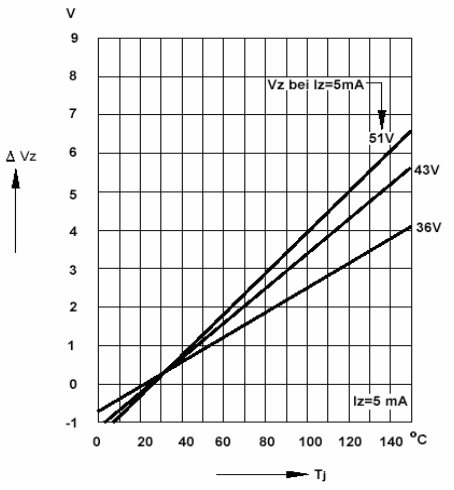

Fig 14. Change of Zener Voltage vs T_J

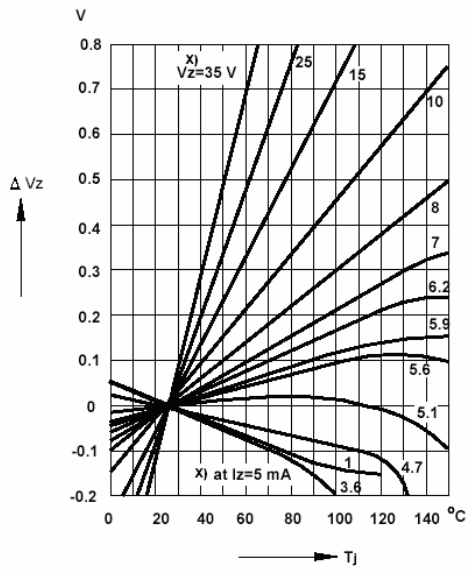

Fig 15. Change of Zener Voltage vs T_J

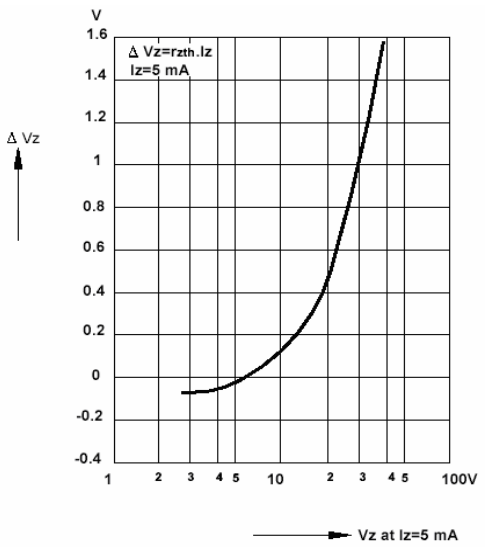

Fig 16. Change of Zener Voltge From Turn-on Up To The Point of Thermal Equilibrium vs Zener Voltage

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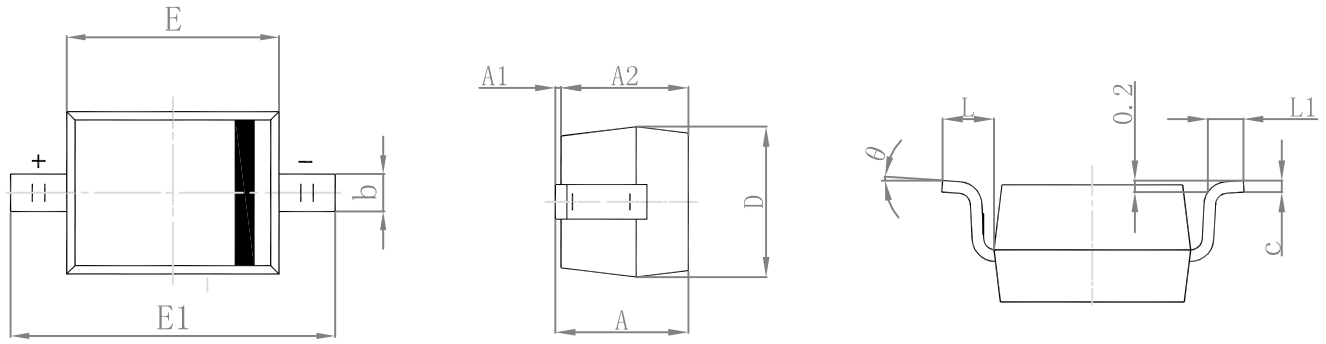
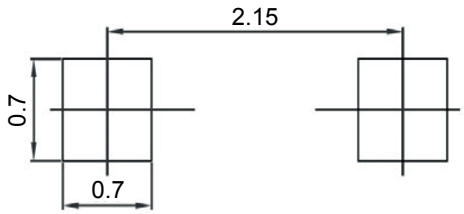
Product Dimensions SOD-323



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.