

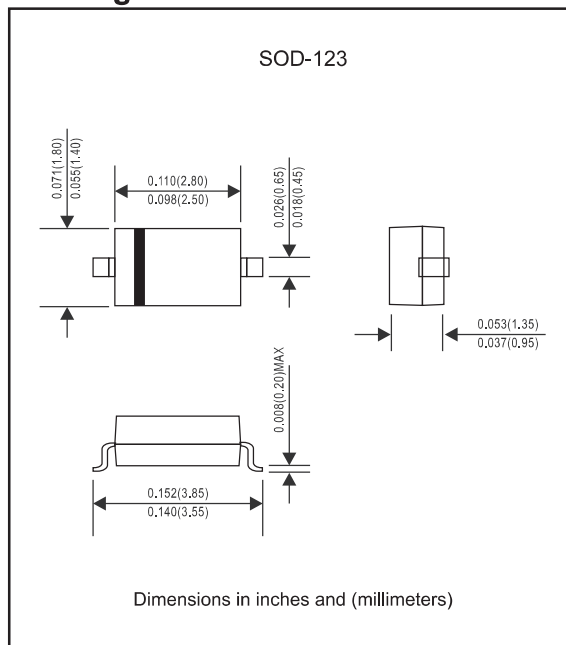
Features

- Silicon epitaxial planar chip structure.
- Zener Breakdown Voltage Range, 2.4V to 43V ex.BZT52B2V4
- Small package size for high density applications.
- Ideally suited for automated assembly processes.
- Pb-Free package is available.
- Compliant to Halogen-free.
- Suffix "-Q1" for AEC-Q101.

Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-123
- Terminals :Plated terminals, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any

Package outline



Maximum ratings (at $T_A=25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Forward voltage	@ $I_F = 10\text{mA}$	V_F			0.9	V
Total power dissipation	at $T_A=25^{\circ}\text{C}$ note1	P_D			500	mW
Thermal resistance	Junction to ambient, note1	$R_{\theta JA}$		305		$^{\circ}\text{C/W}$
	Junction to case, note1	$R_{\theta JC}$		200		$^{\circ}\text{C/W}$
Operating junction temperature range		T_J	-55		+150	$^{\circ}\text{C}$
Storage temperature range		T_{STG}	-55		+150	$^{\circ}\text{C}$

Note1. Device mounted on ceramic PCB; 7.6mm x 9.4mm x 0.87mm with pad area 25mm²

Electrical characteristics (at $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Type Number	Type Code	Zener Voltage Range (Note 2)				Maximum Zener Impedance (Note 3)			Maximum Reverse Current		Typical Temperature Coefficient @ I_{ZTC}		Test Current I_{ZTC}
		$V_Z@I_{ZT}$			I_{ZT}	$Z_{ZT}@I_{ZT}$	$Z_{ZK}@I_{ZK}$	I_{ZK}	I_R	V_R	mV/ $^{\circ}\text{C}$		mA
		Nom(V)	Min(V)	Max(V)	mA	Ω		mA	μA	V	Min	Max	
BZT52B2V4-Q1	2WX	2.4	2.35	2.45	5	100	600	1.0	50	1.0	-3.5	0	5
BZT52B2V7-Q1	2W1	2.7	2.65	2.75	5	100	600	1.0	20	1.0	-3.5	0	5
BZT52B3V0-Q1	2W2	3.0	2.94	3.06	5	95	600	1.0	10	1.0	-3.5	0	5
BZT52B3V3-Q1	2W3	3.3	3.23	3.37	5	95	600	1.0	5	1.0	-3.5	0	5
BZT52B3V6-Q1	2W4	3.6	3.53	3.67	5	90	600	1.0	5	1.0	-3.5	0	5
BZT52B3V9-Q1	2W5	3.9	3.82	3.98	5	90	600	1.0	3	1.0	-3.5	0	5
BZT52B4V3-Q1	2W6	4.3	4.21	4.39	5	90	600	1.0	3	1.0	-3.5	0	5
BZT52B4V7-Q1	2W7	4.7	4.61	4.79	5	80	500	1.0	3	2.0	-3.5	0.2	5
BZT52B5V1-Q1	2W8	5.1	5.00	5.20	5	60	480	1.0	2	2.0	-2.7	1.2	5
BZT52B5V6-Q1	2W9	5.6	5.49	5.71	5	40	400	1.0	1	2.0	-2.0	2.5	5
BZT52B6V2-Q1	2WA	6.2	6.08	6.32	5	10	150	1.0	3	4.0	0.4	3.7	5
BZT52B6V8-Q1	2WB	6.8	6.66	6.94	5	15	80	1.0	2	4.0	1.2	4.5	5
BZT52B7V5-Q1	2WC	7.5	7.35	7.65	5	15	80	1.0	1	5.0	2.5	5.3	5
BZT52B8V2-Q1	2WD	8.2	8.04	8.36	5	15	80	1.0	0.7	5.0	3.2	6.2	5
BZT52B9V1-Q1	2WE	9.1	8.92	9.28	5	15	100	1.0	0.5	6.0	3.8	7.0	5
BZT52B10-Q1	2WF	10	9.80	10.20	5	20	150	1.0	0.2	7.0	4.5	8.0	5
BZT52B11-Q1	2WG	11	10.78	11.22	5	20	150	1.0	0.1	8.0	5.4	9.0	5
BZT52B12-Q1	2WH	12	11.76	12.24	5	25	150	1.0	0.1	8.0	6.0	10.0	5
BZT52B13-Q1	2WI	13	12.74	13.26	5	30	170	1.0	0.1	8.0	7.0	11.0	5
BZT52B15-Q1	2WJ	15	14.70	15.30	5	30	200	1.0	0.1	10.5	9.2	13.0	5
BZT52B16-Q1	2WK	16	15.68	16.32	5	40	200	1.0	0.1	11.2	10.4	14.0	5
BZT52B18-Q1	2WL	18	17.64	18.36	5	45	225	1.0	0.1	12.6	12.4	16.0	5
BZT52B20-Q1	2WM	20	19.60	20.40	5	55	225	1.0	0.1	14.0	14.4	18.0	5
BZT52B22-Q1	2WN	22	21.56	22.44	5	55	250	1.0	0.1	15.4	16.4	20.0	5
BZT52B24-Q1	2WO	24	23.52	24.48	5	70	250	1.0	0.1	16.8	18.4	22.0	5
BZT52B27-Q1	2WP	27	26.46	27.54	2	80	300	0.5	0.1	18.9	21.4	25.3	2
BZT52B30-Q1	2WQ	30	29.40	30.60	2	80	300	0.5	0.1	21.0	24.4	29.4	2
BZT52B33-Q1	2WR	33	32.34	33.66	2	80	325	0.5	0.1	23.1	27.4	33.4	2
BZT52B36-Q1	2WS	36	35.28	36.72	2	90	350	0.5	0.1	25.2	30.4	37.4	2
BZT52B39-Q1	2WT	39	38.22	39.78	2	130	350	0.5	0.1	27.3	33.4	41.2	2
BZT52B43-Q1	2WU	43	42.14	43.86	2	130	350	0.5	0.1	29.4	36.4	45.2	2

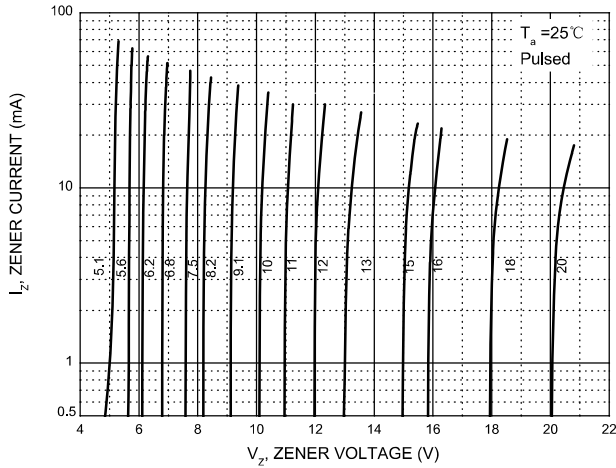
Notes: 1. Device mounted on ceramic PCB: 7.6mm x 9.4mm x 0.87mm with pad areas 25mm²

2. Short duration test pulse used to minimize self-heating effect

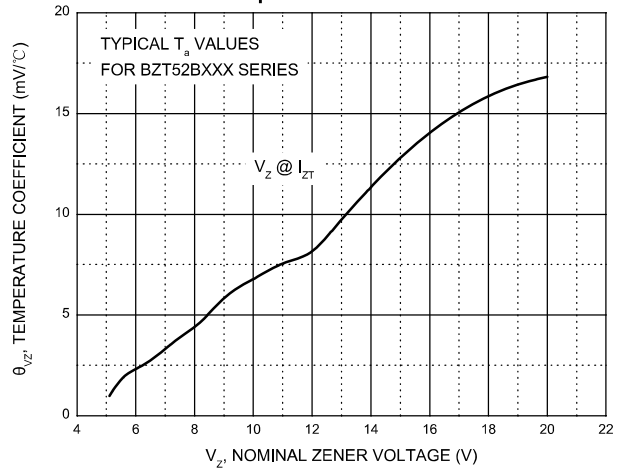
3. $f = 1\text{kHz}$

Rating and characteristic curves (BZT52Bxxx-Q1 Series)

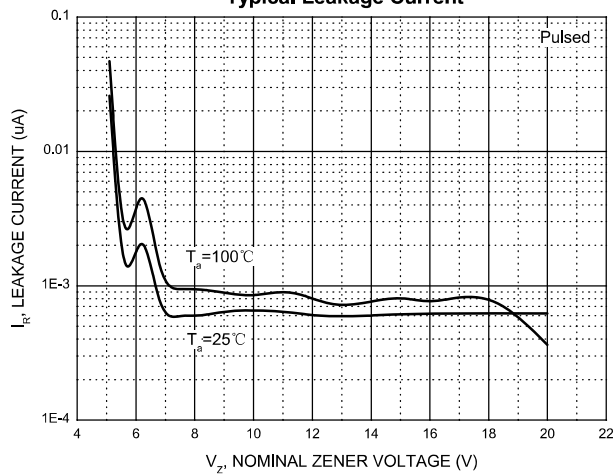
Zener Characteristics (V_Z 5.1V to 20 V)



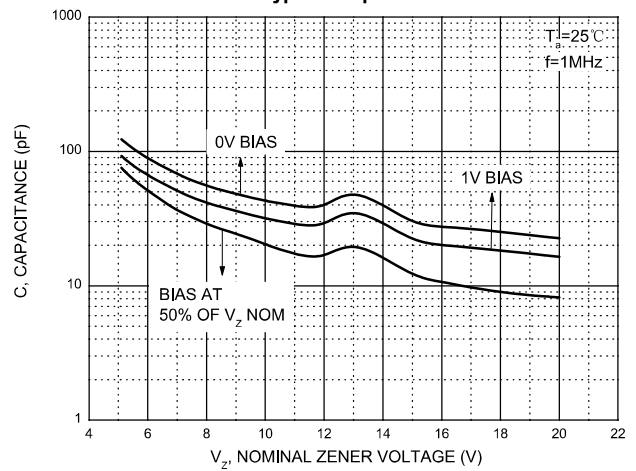
Temperature Coefficients



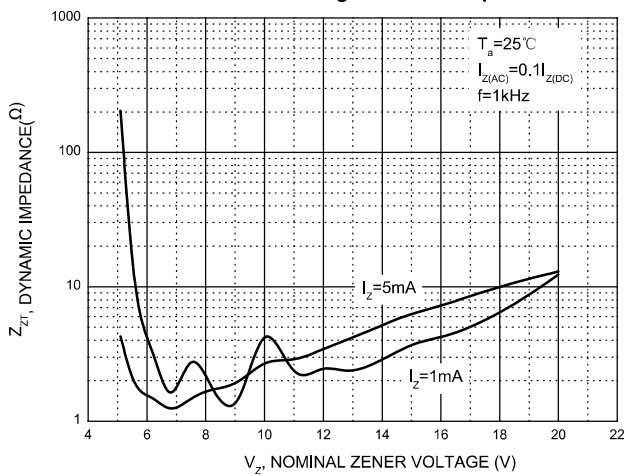
Typical Leakage Current



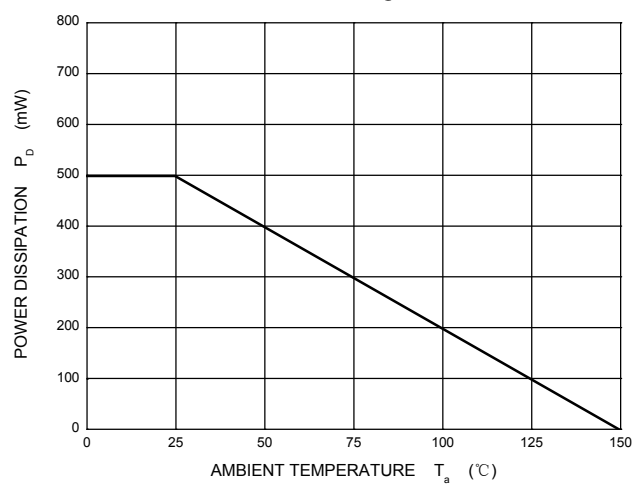
Typical Capacitance



Effect of Zener Voltage on Zener Impedance



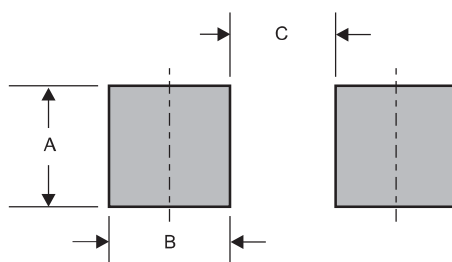
Power Derating Curve



Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Suggested solder pad layout



Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD-123	0.048 (1.22)	0.036 (0.91)	0.093 (2.36)