

5% Zener Voltage Tolerance Zener Diode

FEATURES

- Wide voltage range selection 2.4V to 75V
- Surface mount device type
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- General regulation functions

MECHANICAL DATA

- Case: SOD-123
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: Indicated by cathode band
- Weight: 10.55mg (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
P_D	350	mW
V_Z	2.4 - 75	V
V_F at $I_F = 10\text{mA}$	0.9	V
$T_{J\text{MAX}}$	150	°C
Package	SOD-123	
Configuration	Single die	



SOD-123



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Power dissipation	P_D	350	mW
Forward voltage @ $I_F = 10\text{mA}$	V_F	0.9	V
Junction temperature range	T_J	-55 to +150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-ambient thermal resistance	$R_{\theta JA}$	357	°C/W

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

PART NUMBER	MARKING CODE	ZENER VOLTAGE			TEST CURRENT	REGULAR IMPEDANCE		TEST CURRENT	LEAKAGE CURRENT		TYPICAL TEMPERATURE COEFFICIENT		TEST CURRENT
		$V_Z @ I_{ZT}$			I_{ZT}	Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK}	I_{ZK}	$I_R @ V_R$	@ I_{ZTC}		I_{ZTC}	
		V			mA	Ω	Ω	mA	μA	V	mV/ $^\circ\text{C}$		mA
		Min	Nom	Max		Max	Max		Max		Min	Max	
BZT52C2V4-G	WX	2.2	2.4	2.6	5	100	600	1	50	1.0	-3.5	0	5
BZT52C2V7-G	W1	2.5	2.7	2.9	5	100	600	1	20	1.0	-3.5	0	5
BZT52C3V0-G	W2	2.8	3.0	3.2	5	95	600	1	10	1.0	-3.5	0	5
BZT52C3V3-G	W3	3.1	3.3	3.5	5	95	600	1	5	1.0	-3.5	0	5
BZT52C3V6-G	W4	3.4	3.6	3.8	5	90	600	1	5	1.0	-3.5	0	5
BZT52C3V9-G	W5	3.7	3.9	4.1	5	90	600	1	3	1.0	-3.5	0	5
BZT52C4V3-G	W6	4.0	4.3	4.6	5	90	600	1	3	1.0	-3.5	0	5
BZT52C4V7-G	W7	4.4	4.7	5.0	5	80	500	1	3	2.0	-3.5	0.2	5
BZT52C5V1-G	W8	4.8	5.1	5.4	5	60	480	1	2	2.0	-2.7	1.2	5
BZT52C5V6-G	W9	5.2	5.6	6.0	5	40	400	1	1	2.0	-2.0	2.5	5
BZT52C6V2-G	WA	5.8	6.2	6.6	5	10	150	1	3	4.0	0.4	3.7	5
BZT52C6V8-G	WB	6.4	6.8	7.2	5	15	80	1	2	4.0	1.2	4.5	5
BZT52C7V5-G	WC	7.0	7.5	7.9	5	15	80	1	1	5.0	2.5	5.3	5
BZT52C8V2-G	WD	7.7	8.2	8.7	5	15	80	1	0.7	5.0	3.2	6.2	5
BZT52C9V1-G	WE	8.5	9.1	9.6	5	15	100	1	0.5	6.0	3.8	7.0	5
BZT52C10-G	WF	9.4	10	10.6	5	20	150	1	0.2	7.0	4.5	8.0	5
BZT52C11-G	WG	10.4	11	11.6	5	20	150	1	0.1	8.0	5.4	9.0	5
BZT52C12-G	WH	11.4	12	12.7	5	25	150	1	0.1	8.0	6.0	10.0	5
BZT52C13-G	WI	12.4	13	14.1	5	30	170	1	0.1	8.0	7.0	11.0	5
BZT52C15-G	WJ	13.8	15	15.6	5	30	200	1	0.1	10.5	9.2	13.0	5
BZT52C16-G	WK	15.3	16	17.1	5	40	200	1	0.1	11.2	10.4	14.0	5
BZT52C18-G	WL	16.8	18	19.1	5	45	225	1	0.1	12.6	12.4	16.0	5
BZT52C20-G	WM	18.8	20	21.2	5	55	225	1	0.1	14.0	14.4	18.0	5
BZT52C22-G	WN	20.8	22	23.3	5	55	250	1	0.1	15.4	16.4	20.0	5
BZT52C24-G	WO	22.8	24	25.6	5	70	250	1	0.1	16.8	18.4	22.0	5
BZT52C27-G	WP	25.1	27	28.9	2	80	300	0.5	0.1	18.9	21.4	25.3	2
BZT52C30-G	WQ	28.0	30	32.0	2	80	300	0.5	0.1	21.0	24.4	29.4	2
BZT52C33-G	WR	31.0	33	35.0	2	80	325	0.5	0.1	23.1	27.4	33.4	2
BZT52C36-G	WS	34.0	36	38.0	2	90	350	0.5	0.1	25.2	30.4	37.4	2
BZT52C39-G	WT	37.0	39	41.0	2	130	350	0.5	0.1	27.3	33.4	41.2	2
BZT52C43-G	WU	40.0	43	46.0	5	100	700	1.0	0.1	32.0	37.6	46.6	2
BZT52C47-G	WV	44.7	47	49.4	2	170	1000	0.25	0.1	36.0	42	51.8	2
BZT52C51-G	X1	48.5	51	53.6	2	180	1300	0.25	0.1	39.0	46.6	57.2	2
BZT52C56-G	X2	53.2	56	58.8	2	200	1400	0.25	0.1	43.0	52.2	63.8	2
BZT52C62-G	X3	58.9	62	65.1	2	225	1400	0.25	0.1	47.0	58.8	71.6	2
BZT52C68-G	X4	64.6	68	71.4	2	240	1600	0.25	0.1	52.0	65.6	79.8	2
BZT52C75-G	X5	71.3	75	78.8	2	265	1700	0.25	0.1	56.0	73.4	88.6	2

ORDERING INFORMATION

ORDERING CODE⁽¹⁾	PACKAGE	PACKING
BZT52Cx-G RHG	SOD-123	3K / 7" Reel

Notes:

1. "x" defines voltage from 2.4V(BZT52C2V4-G) to 75V(BZT52C75-G)

CHARACTERISTICS CURVES

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

Fig.1 Typical Forward Characteristics

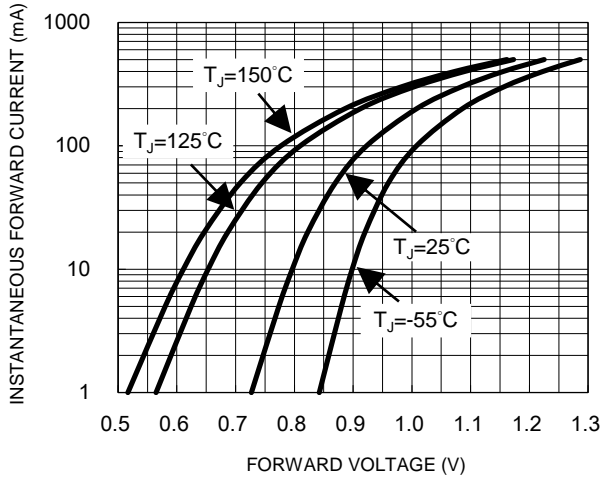


Fig.2 Effect of Zener Voltage on Zener Impedance

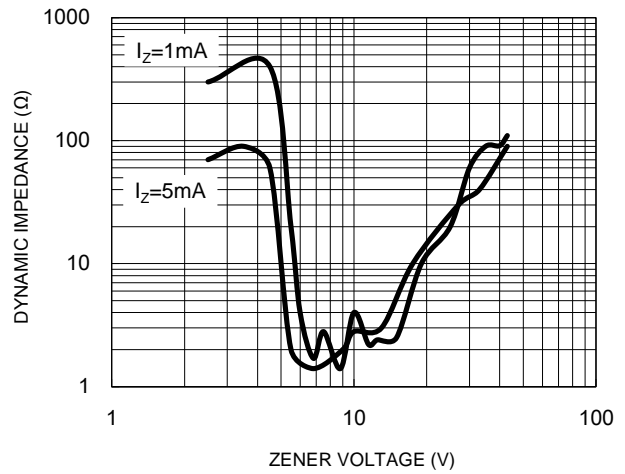


Fig.3 Junction Capacitance VS. Zener Voltage

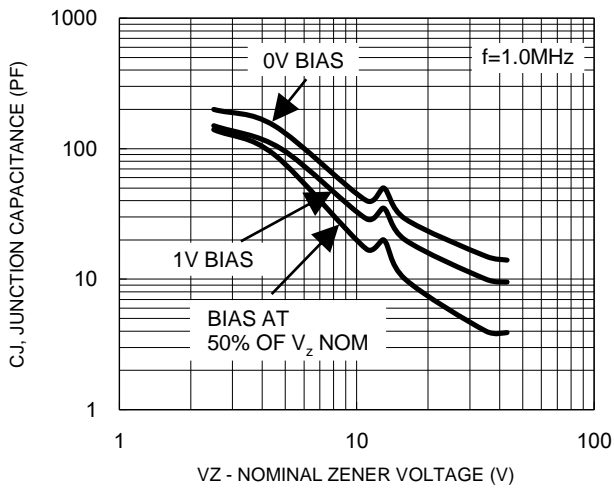
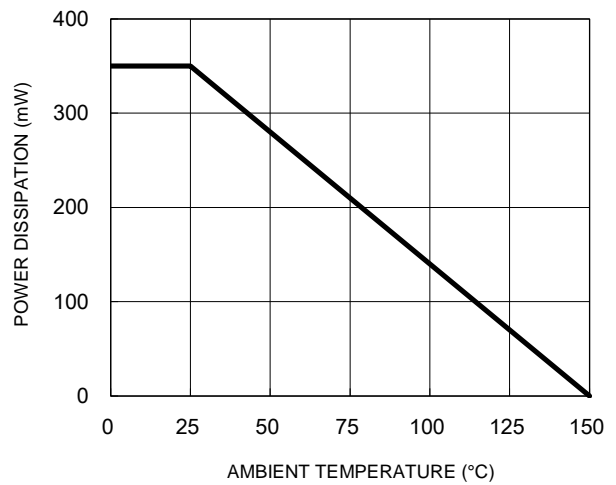


Fig.4 Power Derating Curve



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.5 Zener Breakdown Characteristics

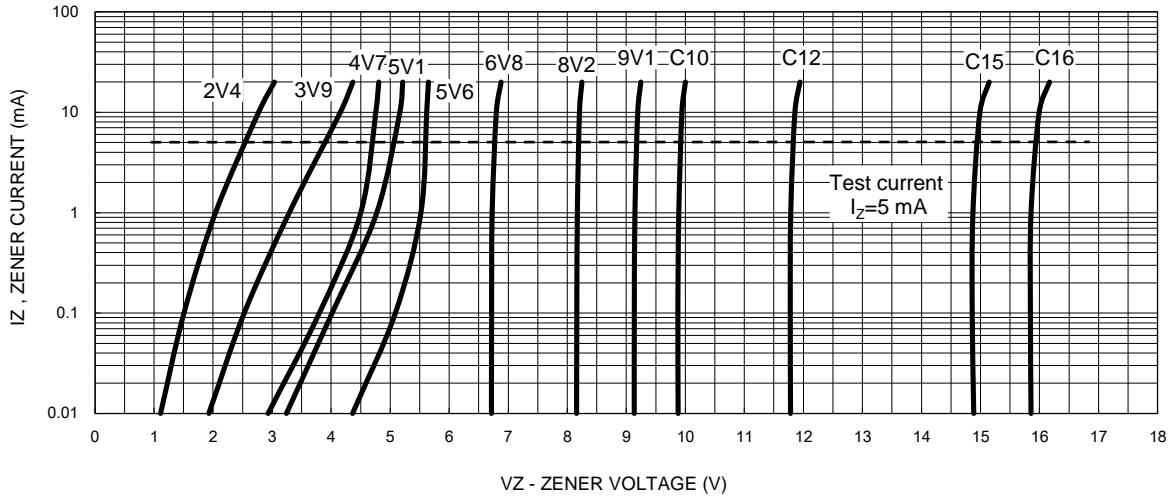
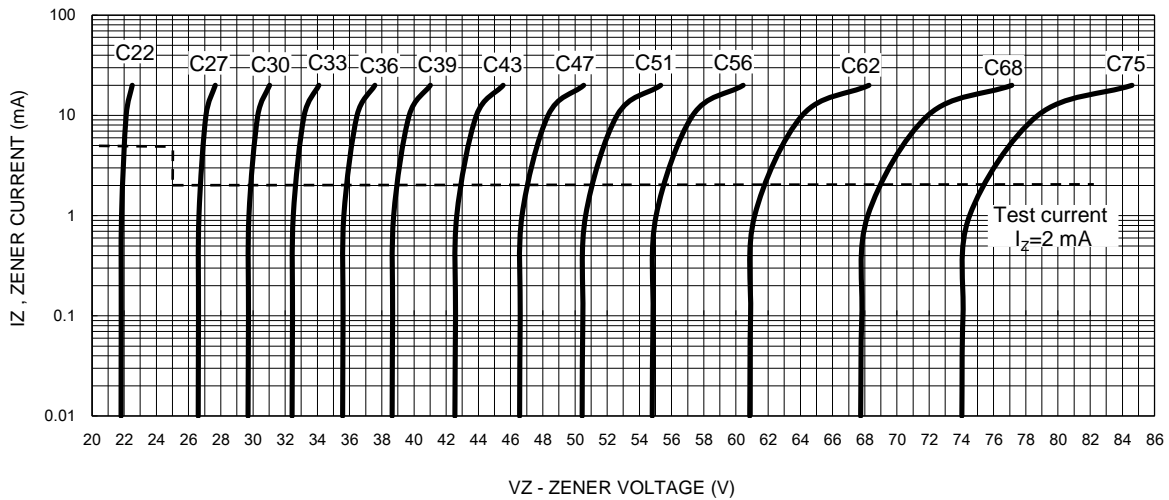
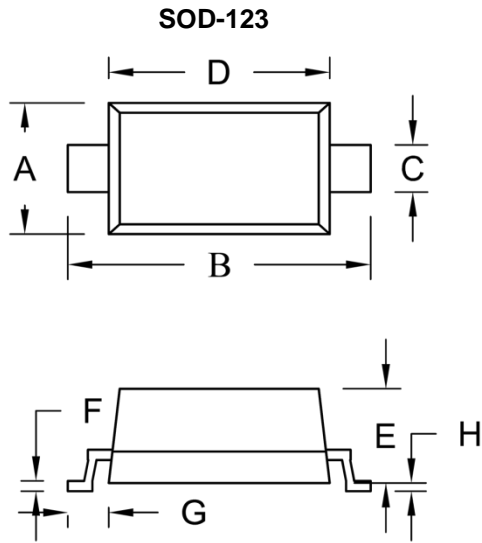


Fig.6 Zener Breakdown Characteris

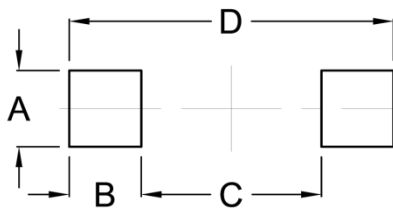


PACKAGE OUTLINE DIMENSIONS



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	1.40	1.80	0.055	0.071
B	3.55	3.85	0.140	0.152
C	0.45	0.70	0.018	0.028
D	2.55	2.85	0.100	0.112
E	0.95	1.35	0.037	0.053
F	0.05	0.15	0.002	0.006
G	0.50 (REF)		0.020 (REF)	
H	-	0.10	-	0.004

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	0.95	0.037
B	0.90	0.035
C	2.25	0.089
D	4.05	0.159

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