

200mW, 2.4V - 75V Surface Mount Zener Diode

FEATURES

- AEC-Q101 qualified
- Zener voltage range selection: 2.4V to 75V
- V_Z tolerance selection of $\pm 2\%$
- Ideally suited for automated assembly processes
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free

KEY PARAMETERS

PARAMETER	VALUE	UNIT
P_D	200	mW
V_Z	2.4 - 75	V
$T_{J\text{ MAX}}$	150	°C
V_F at $I_F=10\text{mA}$	0.9	V
Configuration	Single die	

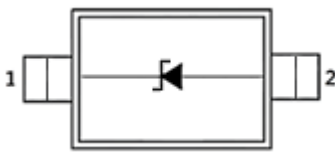
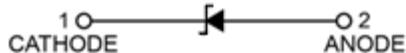
APPLICATIONS

- General regulation functions

MECHANICAL DATA

- Case: SOD-323
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 4.50mg (approximately)



PACKAGE: SOD-323	PIN CONFIGURATION	CIRCUIT DIAGRAM
		

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

PARAMETER	SYMBOL	VALUE	UNIT
Power dissipation ⁽¹⁾	P_D	200	mW
Forward voltage @ $I_F=10\text{mA}$	V_F	0.9	V
Junction temperature	T_J	-55 to +150	°C
Storage temperature	T_{STG}	-55 to +150	°C

Note:

1. Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-ambient thermal resistance ⁽¹⁾	$R_{\theta JA}$	625	°C/W

Thermal Performance Note:

1. Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint

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

PART NUMBER	DEVICE MARKING	ZENER VOLTAGE			TEST CURRENT	REGULAR IMPEDANCE		TEST CURRENT	LEAKAGE CURRENT	
		$V_Z @ I_{ZT}$			I_{ZT}	Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK}	I_{ZK}	$I_R @ V_R$	
		V			mA	Ω	Ω	mA	μA	V
		Min	Nom	Max		Max	Max		Max	
BZT52B2V4SH	<u>2</u> WX	2.35	2.4	2.45	5	100	600	1.0	50	1.0
BZT52B2V7SH	<u>2</u> W1	2.65	2.7	2.75	5	100	600	1.0	20	1.0
BZT52B3V0SH	<u>2</u> W2	2.94	3.0	3.06	5	95	600	1.0	10	1.0
BZT52B3V3SH	<u>2</u> W3	3.23	3.3	3.37	5	95	600	1.0	5	1.0
BZT52B3V6SH	<u>2</u> W4	3.53	3.6	3.67	5	90	600	1.0	5	1.0
BZT52B3V9SH	<u>2</u> W5	3.82	3.9	3.98	5	90	600	1.0	3	1.0
BZT52B4V3SH	<u>2</u> W6	4.21	4.3	4.39	5	90	600	1.0	3	1.0
BZT52B4V7SH	<u>2</u> W7	4.61	4.7	4.79	5	80	500	1.0	3	2.0
BZT52B5V1SH	<u>2</u> W8	5.00	5.1	5.20	5	60	480	1.0	2	2.0
BZT52B5V6SH	<u>2</u> W9	5.49	5.6	5.71	5	40	400	1.0	1	2.0
BZT52B6V2SH	<u>2</u> WA	6.08	6.2	6.32	5	10	150	1.0	3	4.0
BZT52B6V8SH	<u>2</u> WB	6.66	6.8	6.94	5	15	80	1.0	2	4.0
BZT52B7V5SH	<u>2</u> WC	7.35	7.5	7.65	5	15	80	1.0	1	5.0
BZT52B8V2SH	<u>2</u> WD	8.04	8.2	8.36	5	15	80	1.0	0.7	5.0
BZT52B9V1SH	<u>2</u> WE	8.92	9.1	9.28	5	15	100	1.0	0.5	6.0
BZT52B10SH	<u>2</u> WF	9.80	10	10.20	5	20	150	1.0	0.2	7.0
BZT52B11SH	<u>2</u> WG	10.78	11	11.22	5	20	150	1.0	0.1	8.0
BZT52B12SH	<u>2</u> WH	11.76	12	12.24	5	25	150	1.0	0.1	8.0
BZT52B13SH	<u>2</u> WI	12.74	13	13.26	5	30	170	1.0	0.1	8.0
BZT52B14SH	<u>2</u> WY	13.72	14	14.28	5	25	110	1.0	0.1	10.5
BZT52B15SH	<u>2</u> WJ	14.70	15	15.30	5	30	200	1.0	0.1	10.5
BZT52B16SH	<u>2</u> WK	15.68	16	16.32	5	40	200	1.0	0.1	11.2
BZT52B18SH	<u>2</u> WL	17.64	18	18.36	5	45	225	1.0	0.1	12.6
BZT52B20SH	<u>2</u> WM	19.60	20	20.40	5	55	225	1.0	0.1	14.0
BZT52B22SH	<u>2</u> WN	21.56	22	22.44	5	55	250	1.0	0.1	15.4
BZT52B24SH	<u>2</u> WO	23.52	24	24.48	5	70	250	1.0	0.1	16.8
BZT52B27SH	<u>2</u> WP	26.46	27	27.54	2	80	300	0.5	0.1	18.9
BZT52B30SH	<u>2</u> WQ	29.40	30	30.60	2	80	300	0.5	0.1	21.0
BZT52B33SH	<u>2</u> WR	32.34	33	33.66	2	80	325	0.5	0.1	23.1
BZT52B36SH	<u>2</u> WS	35.28	36	36.72	2	90	350	0.5	0.1	25.2
BZT52B39SH	<u>2</u> WT	38.22	39	39.78	2	130	350	0.5	0.1	27.3
BZT52B43SH	<u>2</u> WU	42.14	43	43.86	2	130	350	0.5	0.1	29.4
BZT52B47SH	<u>2</u> WV	45.83	47	48.17	2	170	1000	0.25	0.1	36.0
BZT52B51SH	<u>2</u> X1	49.73	51	52.27	2	180	1300	0.25	0.1	39.0
BZT52B56SH	<u>2</u> X2	54.60	56	57.40	2	200	1400	0.25	0.1	43.0
BZT52B62SH	<u>2</u> X3	60.45	62	63.55	2	225	1400	0.25	0.1	47.0
BZT52B68SH	<u>2</u> X4	66.30	68	69.70	2	240	1600	0.25	0.1	52.0
BZT52B75SH	<u>2</u> X5	73.13	75	76.87	2	265	1700	0.25	0.1	56.0

ORDERING INFORMATION

ORDERING CODE⁽¹⁾	PACKAGE	PACKING
BZT52BxxxSH RRG	SOD-323	3,000 / 7" Tape & Reel

Notes:

1. "xxx" defines voltage from 2.4V(BZT52B2V4SH) to 75V(BZT52B75SH)

CHARACTERISTICS CURVES

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

Fig.1 Power Dissipation Curve

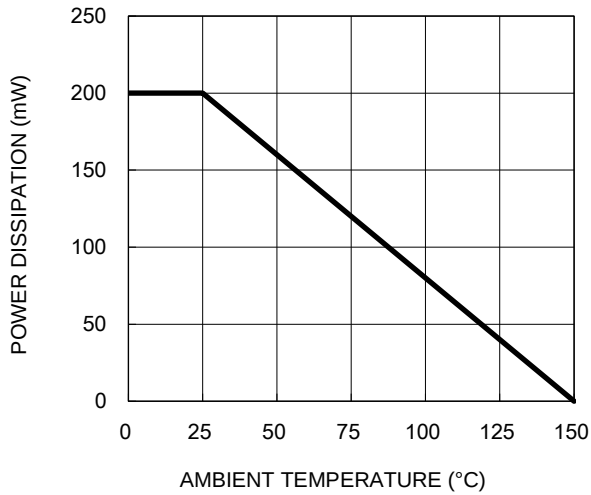


Fig.2 Zener Breakdown Characteristics

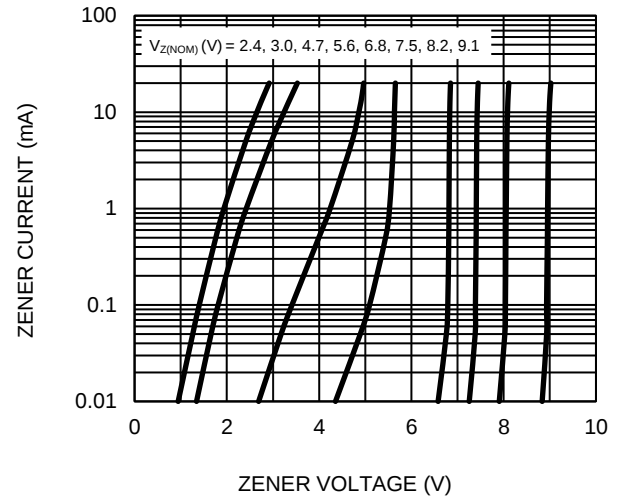


Fig.3 Zener Breakdown Characteristics

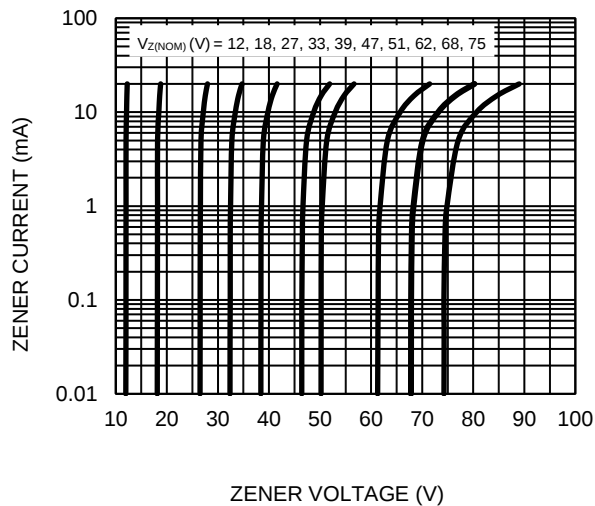


Fig.4 Typical Junction Capacitance

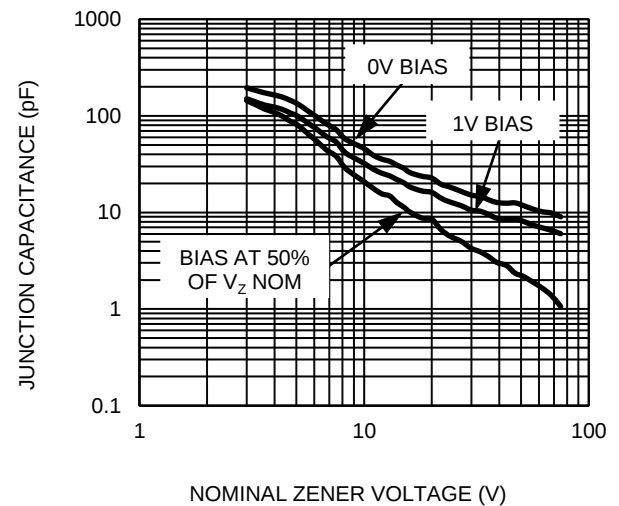
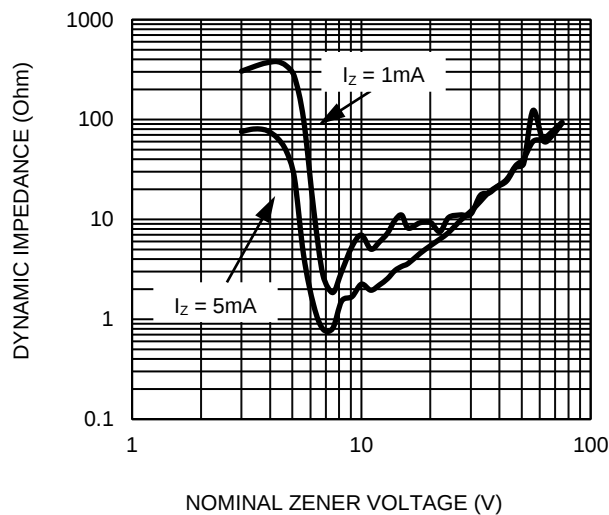
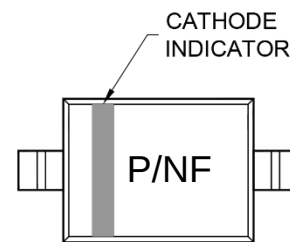
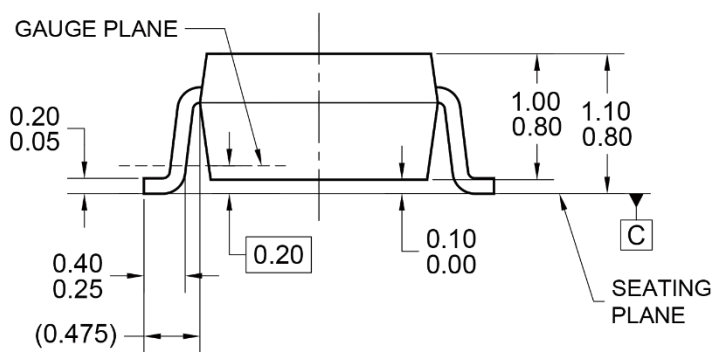
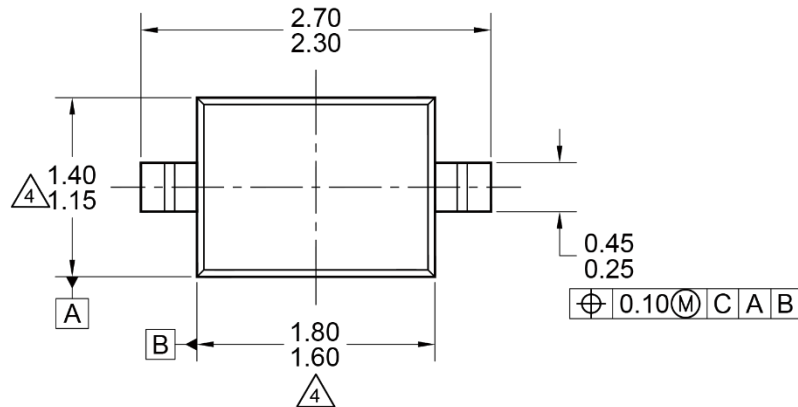


Fig.5 Effect of Zener Voltage on Impedance



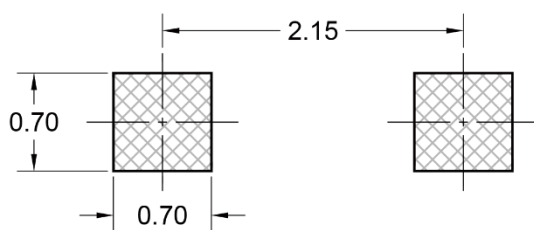
PACKAGE OUTLINE DIMENSION

SOD-323



MARKING DIAGRAM

P/N = Device marking
F = Factory code



SUGGESTED PAD LAYOUT

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. PACKAGE OUTLINE REFERENCE: EIAJ ED-7500A, SC-76A.
4. MOLDED PLASTIC BODY LATERAL DIMENSIONS DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
5. DWG NO. REF: HQ2SD07-SOD323-113 REV A.

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