200mW, 2% Tolerance SMD Zener Diode

FEATURES

- Wide Zener voltage range selection: 2.4V to 75V
- V_Z tolerance selection of ± 2%
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant

APPLICATIONS

- Low voltage stabilizers or voltage references
- Adapters
- On-board DC/DC converter

MECHANICAL DATA

- Case: SOD-323F
- Molding compound meets UL 94 V-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: 4.60mg (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
V_Z	2.4 - 75	V
P_D	200	mW
V_F at I_F = 10mA	1	V
$T_{J\ MAX}$	150	°C
Package	SOD-323F	
Configuration	Single die	

Pb-Free RoHS COMPLIANT



SOD-323F



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)			
PARAMETER	**SYMBOL**	**VALUE**	**UNIT**
Forward voltage @ I_F = 10mA	V_F	1	V
Power dissipation	P_D	200	mW
Junction temperature range	T_J	-65 to +150	°C
Storage temperature range	T_{STG}	-65 to +150	°C

THERMAL PERFORMANCE			
PARAMETER	**SYMBOL**	**TYP**	**UNIT**
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	625	°C/W

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)

PART NUMBER	MARKING CODE	ZENER VOLTAGE			TEST CURRENT	REGULAR IMPEDANCE		TEST CURRENT	LEAKAGE CURRENT	
		V_Z @ I_{ZT}(1)			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	
BZT52B2V4S	0Z	2.35	2.40	2.45	5	100	564	1	45	1
BZT52B2V7S	1Z	2.65	2.70	2.75	5	100	564	1	18	1
BZT52B3V0S	2Z	2.94	3.00	3.06	5	100	564	1	9	1
BZT52B3V3S	3Z	3.23	3.30	3.37	5	95	564	1	4.5	1
BZT52B3V6S	4Z	3.53	3.60	3.67	5	90	564	1	4.5	1
BZT52B3V9S	5Z	3.82	3.90	3.98	5	90	564	1	2.7	1
BZT52B4V3S	6Z	4.21	4.30	4.39	5	90	564	1	2.7	1
BZT52B4V7S	7Z	4.61	4.70	4.79	5	80	470	1	2.7	2.0
BZT52B5V1S	8Z	5.00	5.10	5.20	5	60	451	1	1.8	2.0
BZT52B5V6S	9Z	5.49	5.60	5.71	5	40	376	1	0.9	2.0
BZT52B6V2S	AZ	6.08	6.20	6.32	5	10	141	1	2.7	4.0
BZT52B6V8S	BZ	6.66	6.80	6.94	5	15	75	1	1.8	4.0
BZT52B7V5S	CZ	7.35	7.50	7.65	5	15	75	1	0.9	5.0
BZT52B8V2S	DZ	8.04	8.20	8.36	5	15	75	1	0.63	5.0
BZT52B9V1S	EZ	8.92	9.10	9.28	5	15	94	1	0.45	6.0
BZT52B10S	FZ	9.80	10.00	10.20	5	20	141	1	0.18	7.0
BZT52B11S	GZ	10.78	11.00	11.22	5	20	141	1	0.09	8.0
BZT52B12S	HZ	11.76	12.00	12.24	5	25	141	1	0.09	8.0
BZT52B13S	JZ	12.74	13.00	13.26	5	30	160	1	0.09	8.0
BZT52B15S	KZ	14.70	15.00	15.30	5	30	188	1	0.045	10.5
BZT52B16S	LZ	15.68	16.00	16.32	5	40	188	1	0.045	11.2
BZT52B18S	MZ	17.64	18.00	18.36	5	45	212	1	0.045	12.6
BZT52B20S	NZ	19.60	20.00	20.40	5	55	212	1	0.045	14.0
BZT52B22S	PZ	21.56	22.00	22.44	5	55	235	1	0.045	15.4
BZT52B24S	RZ	23.52	24.00	24.48	5	70	235	1	0.045	16.8
BZT52B27S	SZ	26.46	27.00	27.54	2	80	282	0.5	0.045	18.9
BZT52B30S	TZ	29.40	30.00	30.60	2	80	282	0.5	0.045	21.0
BZT52B33S	UZ	32.34	33.00	33.66	2	80	306	0.5	0.045	23.0
BZT52B36S	VZ	35.28	36.00	36.72	2	90	329	0.5	0.045	25.2
BZT52B39S	WZ	38.22	39.00	39.78	2	130	329	0.5	0.045	27.3
BZT52B43S	XZ	42.14	43.00	43.86	2	150	353	0.5	0.045	30.1
BZT52B47S	YZ	46.06	47.00	47.94	2	170	353	0.5	0.045	33.0
BZT52B51S	－Z	49.98	51.00	52.02	2	180	376	0.5	0.045	35.7
BZT52B56S	＝Z	54.88	56.00	57.12	2	200	400	0.5	0.045	39.2
BZT52B62S	≡Z	60.76	62.00	63.24	2	215	423	0.5	0.045	43.4
BZT52B68S	＞Z	66.64	68.00	69.36	2	240	447	0.5	0.045	47.6
BZT52B75S	＜Z	73.50	75.00	76.50	2	255	470	0.5	0.045	52.5

Notes:

1. The Zener voltage (V_Z) is tested under pulse condition of 30ms.
2. The device numbers listed have a standard tolerance on the normal Zener voltage of ±2%.
3. For detailed information on price, availability and delivery of normal Zener voltages between the voltages shown and tighter voltage tolerances, contact your nearest Taiwan Semiconductor representative.
4. The Zener impedance is derived from the 60-cycle AC voltage, which results when an AC current having an RMS value equal to 10% of the DC Zener current(I_{ZT} or I_{ZK}) is superimposed to I_{ZT} or I_{ZK}.

ORDERING INFORMATION

ORDERING CODE[1][2]	PACKAGE	PACKING
BZT52BxS RRG	SOD-323F	3,000 / 7" Tape & Reel
BZT52BxS RR	SOD-323F	3,000 / 7" Tape & Reel
BZT52BxS R9G	SOD-323F	10,000 / 13" Tape & Reel
BZT52BxS R9	SOD-323F	10,000 / 13" Tape & Reel

Notes:

1. "x" defines voltage from 2.4V (BZT52B2V4S) to 75V (BZT52B75S)
2. “G” means green compound (halogen-free according to IEC 61249-2-21)

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Typical Forward Characteristics

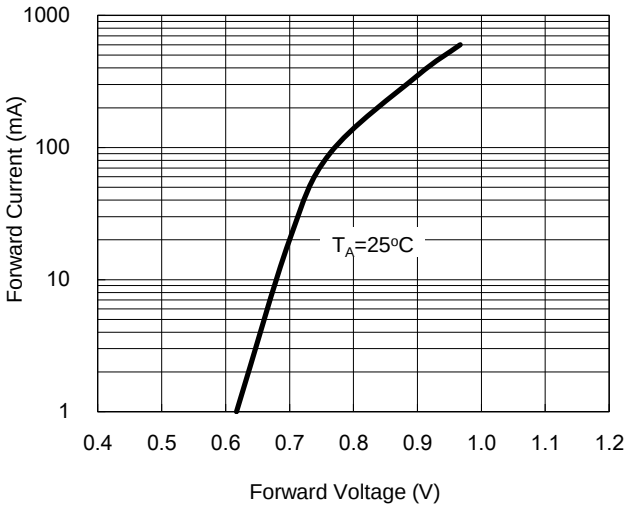


Fig.2 Zener Breakdown Characteristics

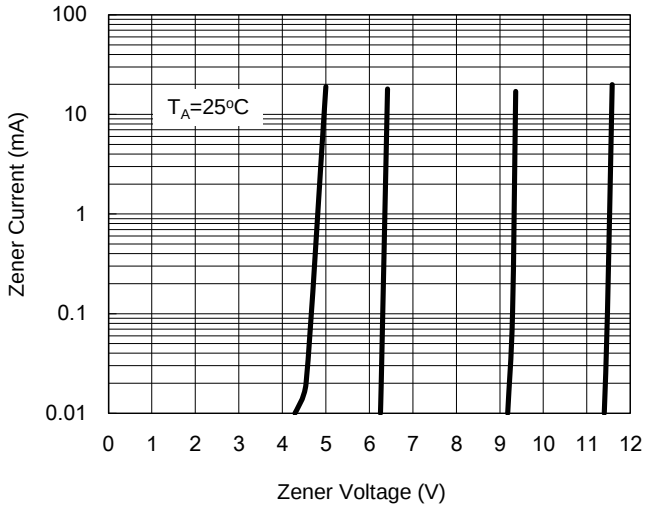


Fig.3 Zener Breakdown Characteristics

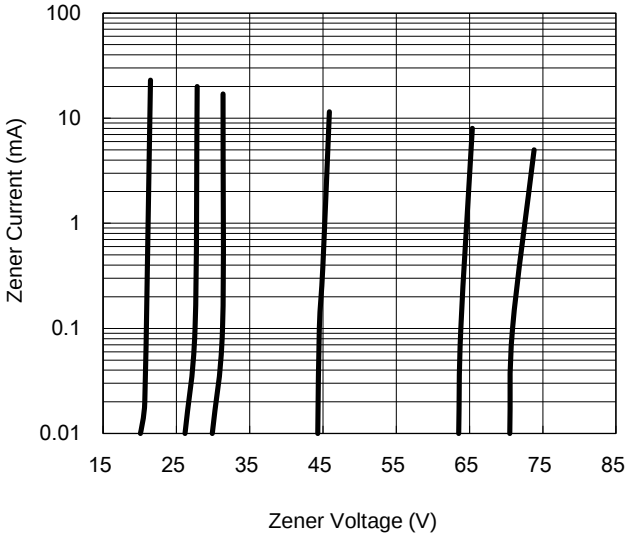
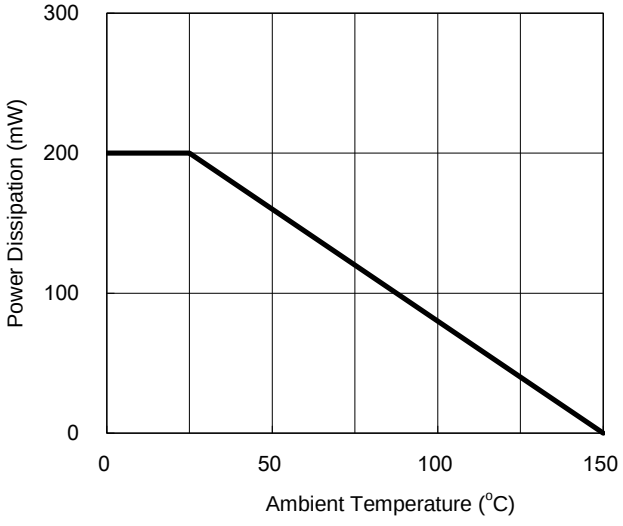


Fig.4 Power Dissipation Curve



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.5 Typical Capacitance

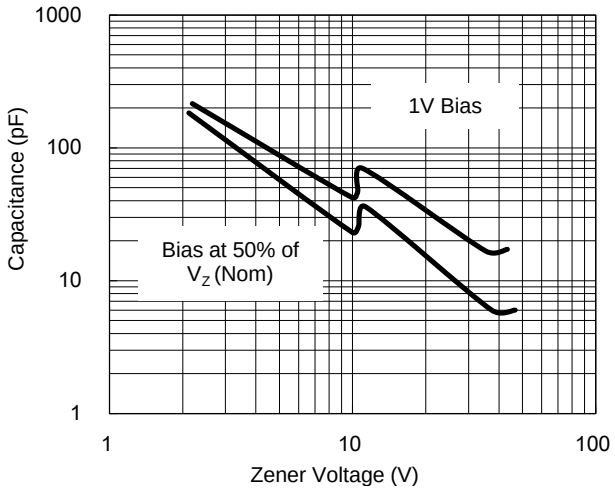
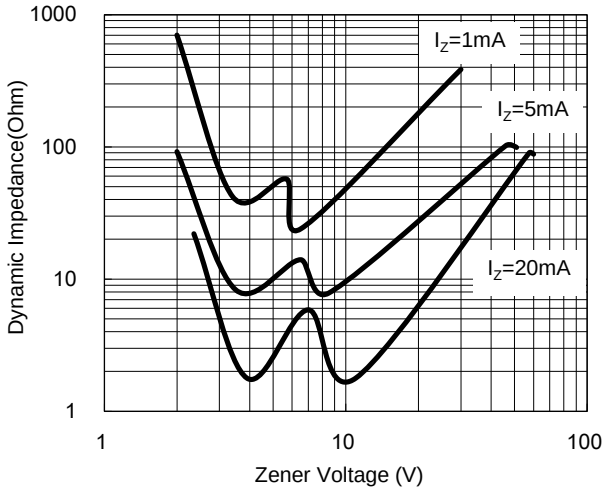
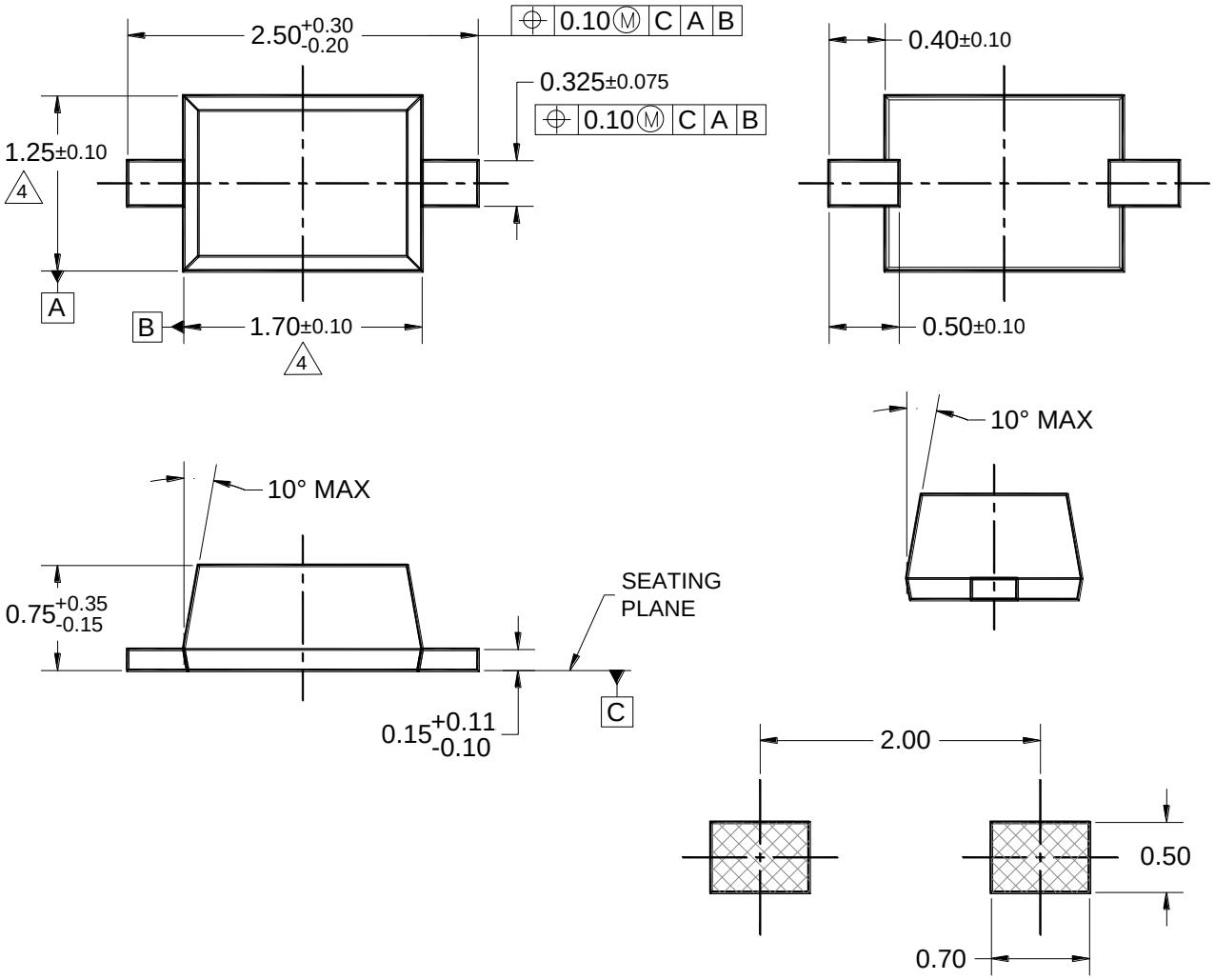


Fig.6 Effect of Zener Voltage on Impedance

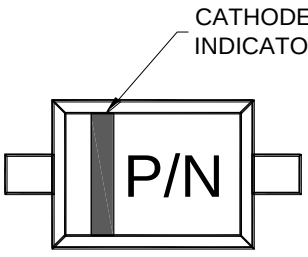


PACKAGE OUTLINE DIMENSIONS

SOD-323F



SUGGESTED PAD LAYOUT



MARKING DIAGRAM

P/N = MARKING CODE

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-1, SC-90.
4. MOLDED PLASTIC BODY LATERAL DIMENSIONS DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
5. DWG NO. REF: HQ2SD07-SOD323F-018 REV A.

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