200mW, 5% Tolerance SMD Zener Diodes

FEATURES

- Wide zener voltage range selection: 2.4V to 75V
- V_Z tolerance selection of ± 5%
- Moisture sensitivity level: level 1, per J-STD-020
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

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	

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
- Polarity: Indicated by cathode band
- Weight: 4.02 ± 0.5mg (approximately)

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}			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.	
BZT52C2V4S	Z0	2.28	2.40	2.52	5	100	564	1	45	1
BZT52C2V7S	Z1	2.57	2.70	2.84	5	100	564	1	18	1
BZT52C3V0S	Z2	2.85	3.00	3.15	5	100	564	1	9	1
BZT52C3V3S	Z3	3.14	3.30	3.47	5	95	564	1	4.5	1
BZT52C3V6S	Z4	3.42	3.60	3.78	5	90	564	1	4.5	1
BZT52C3V9S	Z5	3.71	3.90	4.10	5	90	564	1	2.7	1
BZT52C4V3S	Z6	4.09	4.30	4.52	5	90	564	1	2.7	1
BZT52C4V7S	Z7	4.47	4.70	4.94	5	80	470	1	2.7	2.0
BZT52C5V1S	Z8	4.85	5.10	5.36	5	60	451	1	1.8	2.0
BZT52C5V6S	Z9	5.32	5.60	5.88	5	40	376	1	0.9	2.0
BZT52C6V2S	ZA	5.89	6.20	6.51	5	10	141	1	2.7	4.0
BZT52C6V8S	ZB	6.46	6.80	7.14	5	15	75	1	1.8	4.0
BZT52C7V5S	ZC	7.11	7.50	7.86	5	15	75	1	0.9	5.0
BZT52C8V2S	ZD	7.79	8.20	8.61	5	15	75	1	0.63	5.0
BZT52C9V1S	ZE	8.65	9.10	9.56	5	15	94	1	0.45	6.0
BZT52C10S	ZF	9.50	10	10.50	5	20	141	1	0.18	7.0
BZT52C11S	ZG	10.45	11	11.55	5	20	141	1	0.09	8.0
BZT52C12S	ZH	11.40	12	12.60	5	25	141	1	0.09	8.0
BZT52C13S	ZJ	12.35	13	13.65	5	30	160	1	0.09	8.0
BZT52C15S	ZK	14.25	15	15.75	5	30	188	1	0.045	10.5
BZT52C16S	ZL	15.20	16	16.80	5	40	188	1	0.045	11.2
BZT52C18S	ZM	17.10	18	18.90	5	45	212	1	0.045	12.6
BZT52C20S	ZN	19.00	20	21.00	5	55	212	1	0.045	14.0
BZT52C22S	ZP	20.90	22	23.10	5	55	235	1	0.045	15.4
BZT52C24S	ZR	22.80	24	25.20	5	70	235	1	0.045	16.8
BZT52C27S	ZS	25.65	27	28.35	2	80	282	0.5	0.045	18.9
BZT52C30S	ZT	28.50	30	31.50	2	80	282	0.5	0.045	21.0
BZT52C33S	ZU	31.35	33	34.65	2	80	306	0.5	0.045	23.0
BZT52C36S	ZV	34.20	36	37.80	2	90	329	0.5	0.045	25.2
BZT52C39S	ZW	37.05	39	40.95	2	130	329	0.5	0.045	27.3
BZT52C43S	ZX	40.85	43	45.15	2	150	353	0.5	0.045	30.1
BZT52C47S	ZY	44.65	47	49.35	2	170	353	0.5	0.045	33.0
BZT52C51S	Z—	48.45	51	53.55	2	180	376	0.5	0.045	35.7
BZT52C56S	Z=	53.20	56	58.80	2	200	400	0.5	0.045	39.2
BZT52C62S	Z≡	58.90	62	65.10	2	215	423	0.5	0.045	43.4
BZT52C68S	Z>	64.60	68	71.40	2	240	447	0.5	0.045	47.6
BZT52C75S	Z<	71.25	75	78.75	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 ±5%.
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		
PART NO. (Note 1)	**PACKAGE**	**PACKING**
BZT52CxxxS RRG	SOD-323F	3K / 7" Reel
BZT52CxxxS RR	SOD-323F	3K / 7" Reel
BZT52CxxxS R9G	SOD-323F	10K / 13" Reel
BZT52CxxxS R9	SOD-323F	10K / 13" Reel

Note:

1. "xxx" defines voltage from 2.4V (BZT52C2V4S) to 75V (BZT52C75S)

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Typical Forward Characteristics

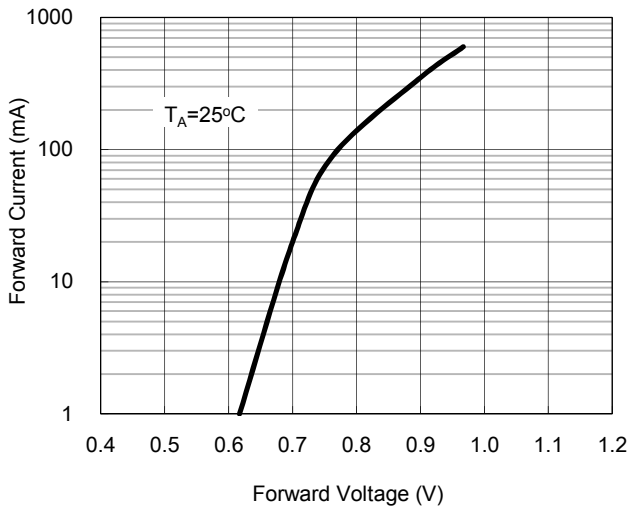


Fig. 2 Zener Breakdown Characteristics

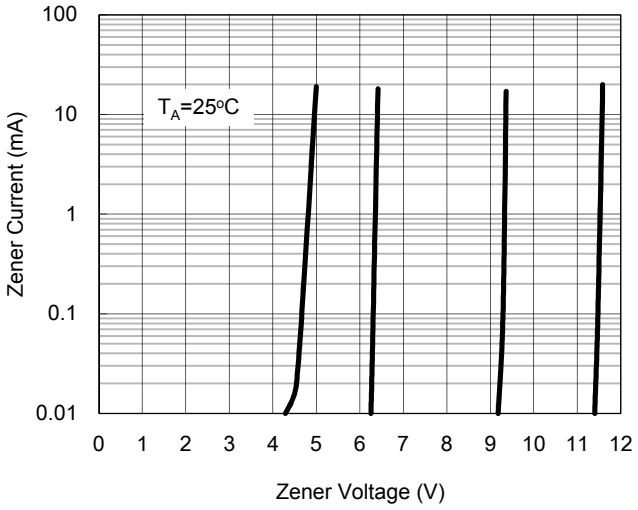


Fig. 3 Zener Breakdown Characteristics

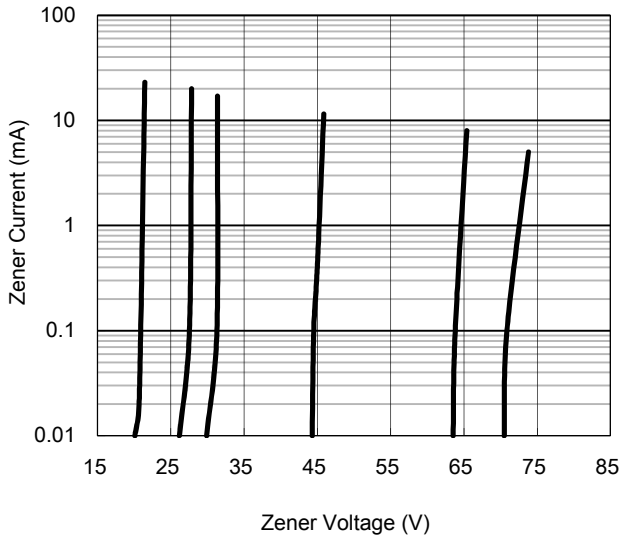
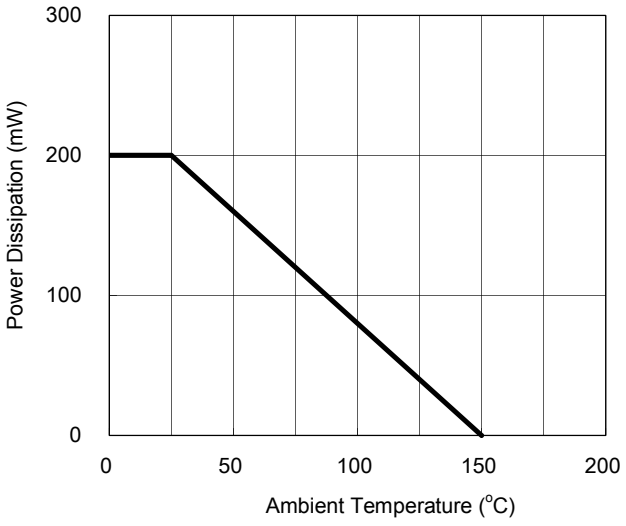


Fig.4 Power Dissipation Curve



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.5 Typical Capacitance

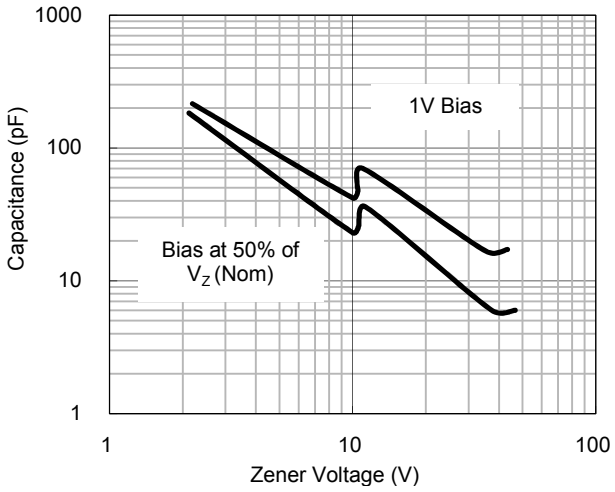
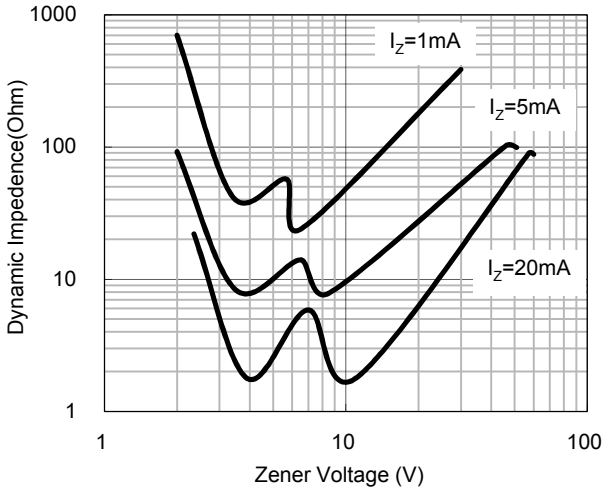
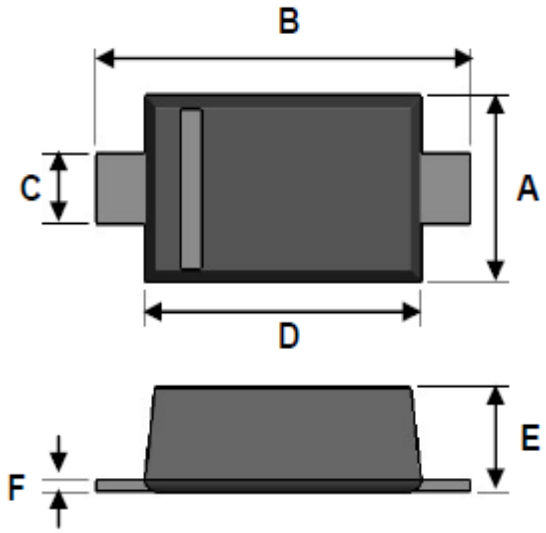


Fig.6 Effect of Zener Voltage on Impedence



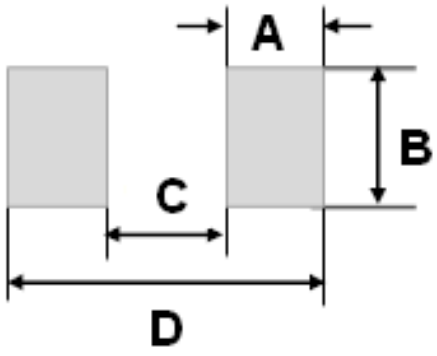
PACKAGE OUTLINE DIMENSION

SOD-323F



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.15	1.35	0.045	0.053
B	2.30	2.80	0.091	0.110
C	0.25	0.40	0.010	0.016
D	1.60	1.80	0.063	0.071
E	0.80	1.10	0.031	0.043
F	0.05	0.25	0.002	0.010

SUGGEST PAD LAYOUT



DIM.	Unit (mm)	Unit (inch)
	Typ.	Typ.
A	0.63	0.025
B	0.83	0.033
C	1.60	0.063
D	2.86	0.113

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