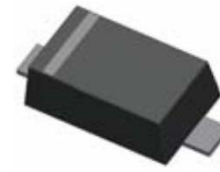


**Small Signal Product**

**5% Tolerance SMD Zener Diode**

**FEATURES**

- Wide zener voltage range selection : 2.4V to 75V
- Surface Mount Device Type
- VZ Tolerance Selection of  $\pm 5\%$
- Matte Tin(Sn) lead finish with Nickel(Ni) underplate
- Moisture sensitivity level 1
- Pb free and RoHS compliant
- Green compound (Halogen free) with suffix "G" on packing code and prefix "G" on date code



**SOD-323F**



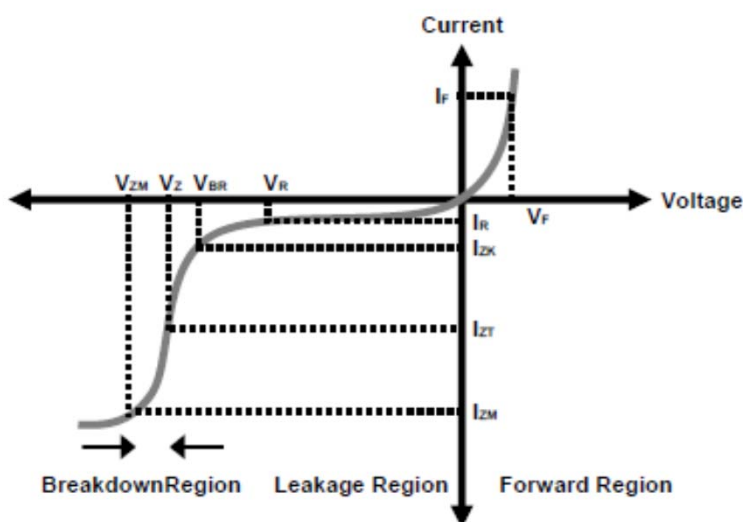
**MECHANICAL DATA**

- Case: Flat lead SOD-323F small outline plastic package
- Terminal: Matte tin plated, lead free, solderable per MIL-STD-202, Method 208 guaranteed
- High temperature soldering guaranteed: 260°C/10s
- Polarity: Indicated by cathode band
- Weight : 4.02  $\pm$  0.5mg

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T <sub>A</sub> =25°C unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Forward Voltage @ I <sub>F</sub> = 10mA	V <sub>F</sub>	1	V
Power Dissipation	P <sub>D</sub>	200	mW
Thermal Resistance from Junction to Ambient (Note 1)	R <sub>θJA</sub>	625	°C/W
Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

Note 1: Valid provided that electrodes are kept at ambient temperature.

**Zener I vs. V Characteristics**



- V<sub>BR</sub> : Voltage at I<sub>ZK</sub>
- I<sub>ZK</sub> : Test current for voltage V<sub>BR</sub>
- Z<sub>ZK</sub> : Dynamic impedance at I<sub>ZK</sub>
- I<sub>ZT</sub> : Test current for voltage V<sub>Z</sub>
- V<sub>Z</sub> : Voltage at current I<sub>ZT</sub>
- Z<sub>ZT</sub> : Dynamic impedance at I<sub>ZT</sub>
- I<sub>ZM</sub> : Maximum steady state current
- V<sub>ZM</sub> : Voltage at I<sub>ZM</sub>

**Small Signal Product**

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

Part Number	Device Marking	$V_Z @ I_{ZT}$ (Volt)			$I_{ZT}$ (mA)	$Z_{ZT} @ I_{ZT}$ ( $\Omega$ ) Max	$I_{ZK}$ (mA)	$Z_{ZK} @ I_{ZK}$ ( $\Omega$ ) Max	$I_R @ V_R$ (uA) Max	$V_R$ (V)
		Min	Nom	Max						
BZT52C2V4S	Z0	2.28	2.40	2.52	5	100	1	564	45	1
BZT52C2V7S	Z1	2.57	2.70	2.84	5	100	1	564	18	1
BZT52C3V0S	Z2	2.85	3.00	3.15	5	100	1	564	9	1
BZT52C3V3S	Z3	3.14	3.30	3.47	5	95	1	564	4.5	1
BZT52C3V6S	Z4	3.42	3.60	3.78	5	90	1	564	4.5	1
BZT52C3V9S	Z5	3.71	3.90	4.10	5	90	1	564	2.7	1
BZT52C4V3S	Z6	4.09	4.30	4.52	5	90	1	564	2.7	1
BZT52C4V7S	Z7	4.47	4.70	4.94	5	80	1	470	2.7	2.0
BZT52C5V1S	Z8	4.85	5.10	5.36	5	60	1	451	1.8	2.0
BZT52C5V6S	Z9	5.32	5.60	5.88	5	40	1	376	0.9	2.0
BZT52C6V2S	ZA	5.89	6.20	6.51	5	10	1	141	2.7	4.0
BZT52C6V8S	ZB	6.46	6.80	7.14	5	15	1	75	1.8	4.0
BZT52C7V5S	ZC	7.11	7.50	7.86	5	15	1	75	0.9	5.0
BZT52C8V2S	ZD	7.79	8.20	8.61	5	15	1	75	0.63	5.0
BZT52C9V1S	ZE	8.65	9.10	9.56	5	15	1	94	0.45	6.0
BZT52C10S	ZF	9.50	10	10.50	5	20	1	141	0.18	7.0
BZT52C11S	ZG	10.45	11	11.55	5	20	1	141	0.09	8.0
BZT52C12S	ZH	11.40	12	12.60	5	25	1	141	0.09	8.0
BZT52C13S	ZJ	12.35	13	13.65	5	30	1	160	0.09	8.0
BZT52C15S	ZK	14.25	15	15.75	5	30	1	188	0.045	10.5
BZT52C16S	ZL	15.20	16	16.80	5	40	1	188	0.045	11.2
BZT52C18S	ZM	17.10	18	18.90	5	45	1	212	0.045	12.6
BZT52C20S	ZN	19.00	20	21.00	5	55	1	212	0.045	14.0
BZT52C22S	ZP	20.90	22	23.10	5	55	1	235	0.045	15.4
BZT52C24S	ZR	22.80	24	25.20	5	70	1	235	0.045	16.8
BZT52C27S	ZS	25.65	27	28.35	2	80	0.5	282	0.045	18.9
BZT52C30S	ZT	28.50	30	31.50	2	80	0.5	282	0.045	21.0
BZT52C33S	ZU	31.35	33	34.65	2	80	0.5	306	0.045	23.0
BZT52C36S	ZV	34.20	36	37.80	2	90	0.5	329	0.045	25.2
BZT52C39S	ZW	37.05	39	40.95	2	130	0.5	329	0.045	27.3
BZT52C43S	ZX	40.85	43	45.15	2	150	0.5	353	0.045	30.1
BZT52C47S	ZY	44.65	47	49.35	2	170	0.5	353	0.045	33.0
BZT52C51S	Z-	48.45	51	53.55	2	180	0.5	376	0.045	35.7
BZT52C56S	Z=	53.20	56	58.80	2	200	0.5	400	0.045	39.2
BZT52C62S	Z≡	58.90	62	65.10	2	215	0.5	423	0.045	43.4
BZT52C68S	Z>	64.60	68	71.40	2	240	0.5	447	0.045	47.6
BZT52C75S	Z<	71.25	75	78.75	2	255	0.5	470	0.045	52.5

- Notes :
1. The Zener Voltage ( $V_Z$ ) is tested under pulse condition of 10ms.
  2. The device numbers listed have a standard tolerance on the nominal zener voltage of  $\pm 5\%$
  3. For detailed information on price, availability and delivery of nominal 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  $I_{ZK}$ .

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RATINGS AND CHARACTERISTICS CURVES

(TA=25°C unless otherwise noted)

Fig. 1 Typical Forward Characteristics

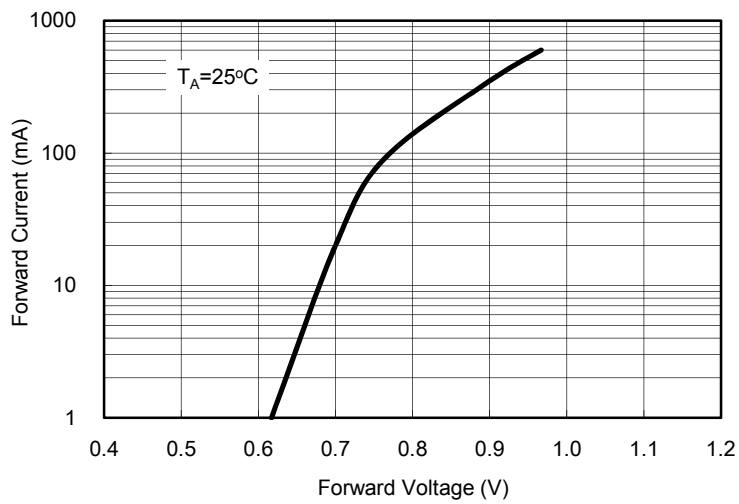


Fig. 2 Zener Breakdown Characteristics

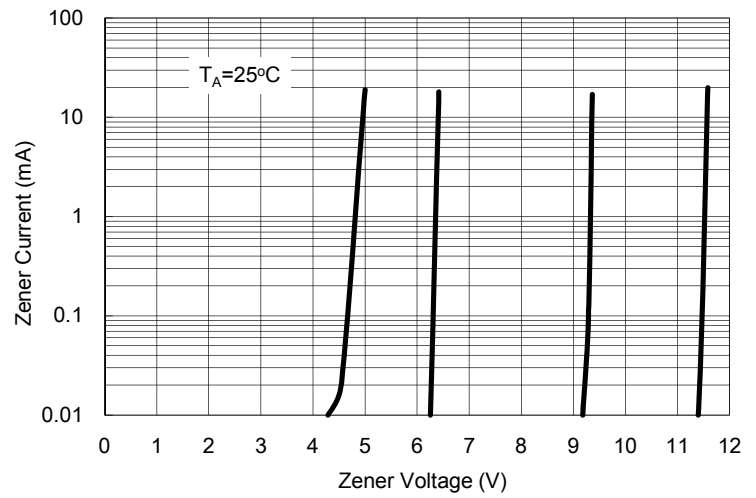


Fig. 3 Zener Breakdown Characteristics

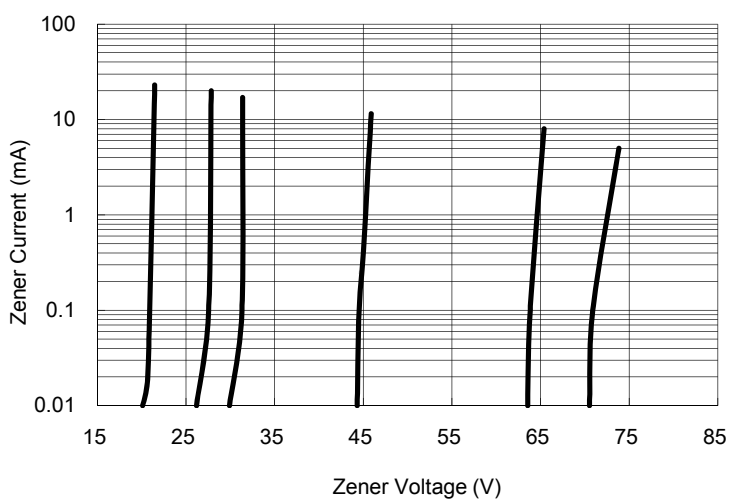


Fig. 4 Power Dissipation Curve

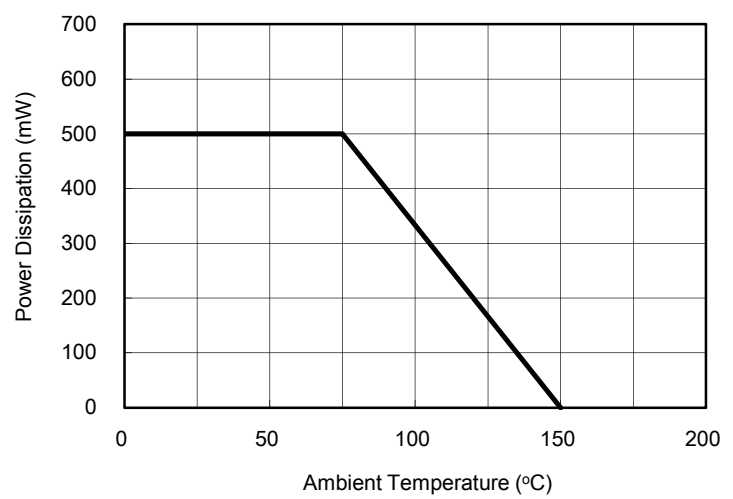


Fig. 5 Typical Capacitance

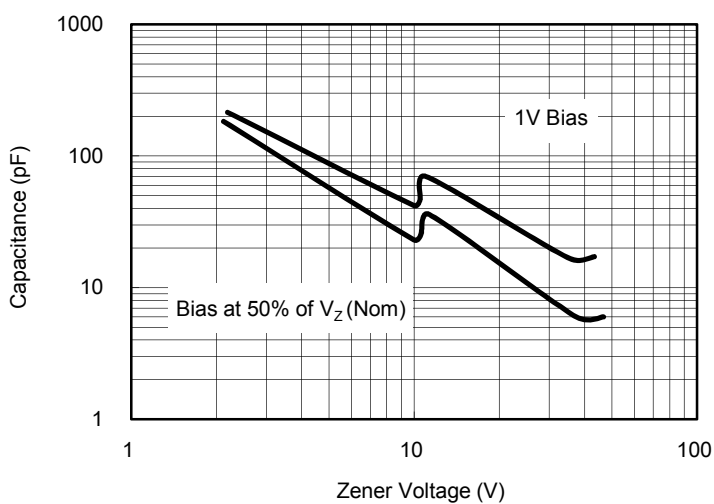
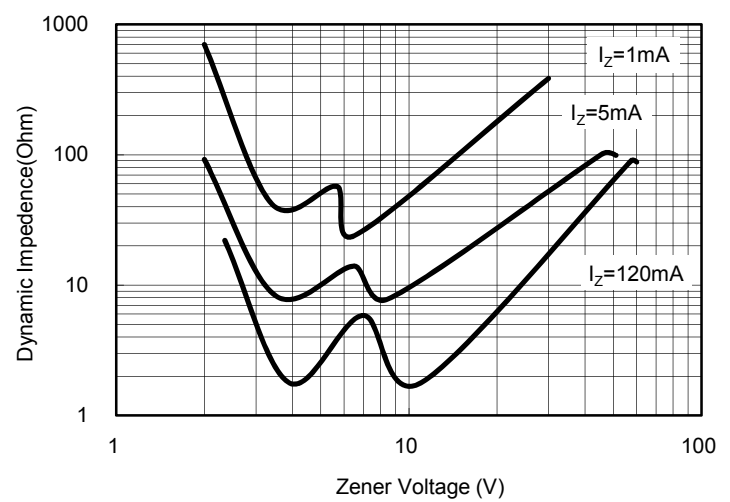


Fig. 6 Effect of Zener Voltage on Impedance



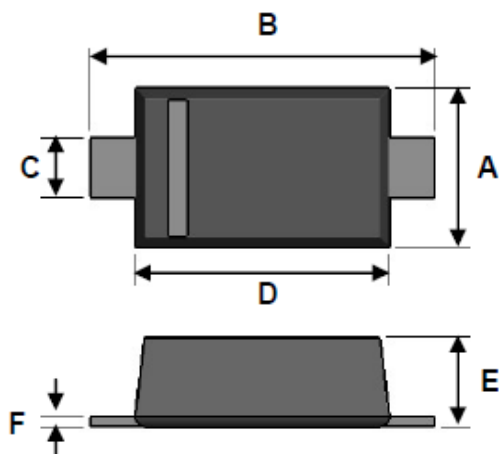
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ORDERING INFORMATION					
PART NO.	MANUFACTURE CODE	PACKING CODE	GREEN COMPOUND CODE	PACKAGE	PACKING
BZT52CxxxS (Note 1)	(Note 2)	RR	G	SOD-323F	3K / 7" Reel
		R9			10K / 13" Reel

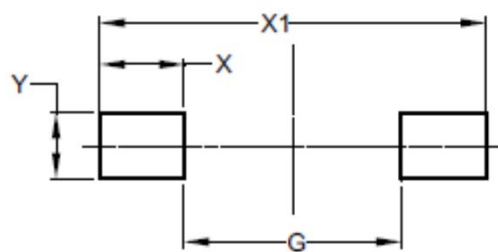
Note 1: "xxx" defines voltage from 2.4V (BZT52C2V4S) to 75V (BZT52C75S)

Note 2: Manufacture special control, if empty means no special control requirement.

EXAMPLE					
PREFERRED P/N	PART NO.	MANUFACTURE CODE	PACKING CODE	GREEN COMPOUND CODE	DESCRIPTION
BZT52C75S RRG	BZT52C75S		RR	G	Green compound
BZT52C75S-L0 RRG	BZT52C75S	L0	RR	G	Green compound
BZT52C75S-B0 RRG	BZT52C75S	B0	RR	G	Green compound

**PACKAGE OUTLINE DIMENSIONS**
**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.
G	1.280	0.050
X	0.710	0.028
X1	2.700	0.106
Y	0.403	0.016

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