Small Signal Product

500mW, 2% Tolerance SMD Zener Diode

FEATURES

- Wide zener voltage range selection : 2.4V to 75V
- Surface Mount Device Type
- 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
- Ideal for Surface Mounted Applications
- V_Z Tolerance Selection of ±2%
- Matte Tin(Sn) lead finish with Nickel(Ni) underplate



SOD-123F

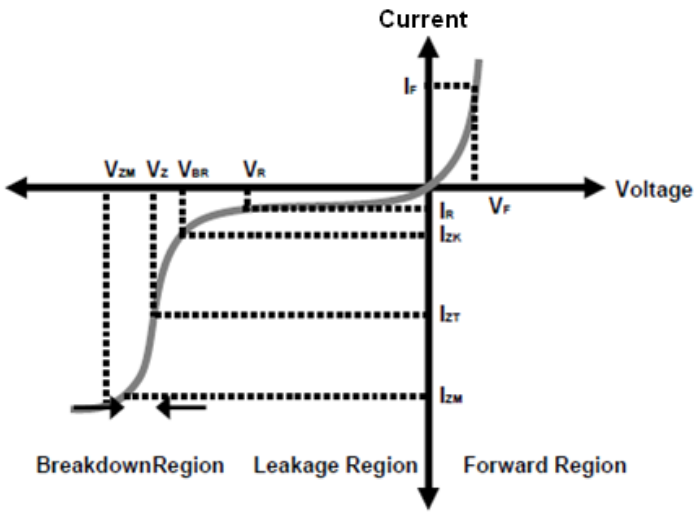
MECHANICAL DATA

- Case: Flat lead SOD-123 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 : 8.85 ± 0.5mg

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T_A=25℃ unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Forward Voltage @ I_F = 10mA	V_F	1	V
Power Dissipation	P_D	500	mW
Thermal Resistance from Junction to Ambient (Note 1)	$R_{\theta JA}$	350	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	- 65 to + 150	°C

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

ZENER I vs. V CHARACTERISTICS



V_{BR} : Voltage at I_{ZK}
I_{ZK} : Test current for voltage V_{BR}
Z_{ZK} : Dynamic impedance at I_{ZK}
I_{ZT} : Test current for voltage V_Z
V_Z : Voltage at current I_{ZT}
Z_{ZT} : Dynamic impedance at I_{ZT}
I_{ZM} : Maximum steady state current
V_{ZM} : Voltage at I_{ZM}

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ELECTRICAL CHARACTERISTICS

(Ratings at TA=25°C ambient temperature unless otherwise specified, and V_F Forward Voltage = 1V Maximum @ I_F = 10 mA for all part numbers)

Device Type	Marking code	Zener Voltage Range				Maximun Zener Impedance			Maximun Reverse Current	
		V_Z @ I_{ZT}			I_{ZT}	Z_{ZT} @ I_{ZT}	Z_{Zk} @ I_{zk}	I_{ZK}	I_R	V_R
		Min(V)	Nom(V)	Max(V)	mA	Ohm		mA	uA	V
BZT52B2V4	2V4B	2.35	2.40	2.45	5	100	564	1	45	1
BZT52B2V7	2V7B	2.65	2.70	2.75	5	100	564	1	18	1
BZT52B3V0	3V0B	2.94	3.00	3.06	5	100	564	1	9	1
BZT52B3V3	3V3B	3.23	3.30	3.37	5	95	564	1	4.5	1
BZT52B3V6	3V6B	3.53	3.60	3.67	5	90	564	1	4.5	1
BZT52B3V9	3V9B	3.82	3.90	3.98	5	90	564	1	2.7	1
BZT52B4V3	4V3B	4.21	4.30	4.39	5	90	564	1	2.7	1
BZT52B4V7	4V7B	4.61	4.70	4.79	5	80	470	1	2.7	2.0
BZT52B5V1	5V1B	5.00	5.10	5.20	5	60	451	1	1.8	2.0
BZT52B5V6	5V6B	5.49	5.60	5.71	5	40	376	1	0.9	2.0
BZT52B6V2	6V2B	6.08	6.20	6.32	5	10	141	1	2.7	4.0
BZT52B6V8	6V8B	6.66	6.80	6.94	5	15	75	1	1.8	4.0
BZT52B7V5	7V5B	7.35	7.50	7.65	5	15	75	1	0.9	5.0
BZT52B8V2	8V2B	8.04	8.20	8.36	5	15	75	1	0.63	5.0
BZT52B9V1	9V1B	8.92	9.10	9.28	5	15	94	1	0.45	6.0
BZT52B10	10VB	9.80	10.00	10.20	5	20	141	1	0.18	7.0
BZT52B11	11VB	10.78	11.00	11.22	5	20	141	1	0.09	8.0
BZT52B12	12VB	11.76	12.00	12.24	5	25	141	1	0.09	8.0
BZT52B13	13VB	12.74	13.00	13.26	5	30	160	1	0.09	8.0
BZT52B15	15VB	14.70	15.00	15.30	5	30	188	1	0.045	10.5
BZT52B16	16VB	15.68	16.00	16.32	5	40	188	1	0.045	11.2
BZT52B18	18VB	17.64	18.00	18.36	5	45	212	1	0.045	12.6
BZT52B20	20VB	19.60	20.00	20.40	5	55	212	1	0.045	14.0
BZT52B22	22VB	21.56	22.00	22.44	5	55	235	1	0.045	15.4
BZT52B24	24VB	23.52	24.00	24.48	5	70	235	1	0.045	16.8
BZT52B27	27VB	26.46	27.00	27.54	2	80	282	0.5	0.045	18.9
BZT52B30	30VB	29.40	30.00	30.60	2	80	282	0.5	0.045	21.0
BZT52B33	33VB	32.34	33.00	33.66	2	80	306	0.5	0.045	23.0
BZT52B36	36VB	35.28	36.00	36.72	2	90	329	0.5	0.045	25.2
BZT52B39	39VB	38.22	39.00	39.78	2	130	329	0.5	0.045	27.3
BZT52B43	43VB	42.14	43.00	43.86	2	150	353	0.5	0.045	30.1
BZT52B47	47VB	46.06	47.00	47.94	2	170	353	0.5	0.045	33.0
BZT52B51	51VB	49.98	51.00	52.02	2	180	376	0.5	0.045	35.7
BZT52B56	56VB	54.88	56.00	57.12	2	200	400	0.5	0.045	39.2
BZT52B62	62VB	60.76	62.00	63.24	2	215	423	0.5	0.045	43.4
BZT52B68	68VB	66.64	68.00	69.36	2	240	447	0.5	0.045	47.6
BZT52B75	75VB	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 10ms.

2. The device numbers listed have a standard tolerance on the nomial zener voltage of ±2%.

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 is superimposed to I_{ZT} or I_{ZK}.

RATINGS AND CHARACTERISTICS CURVES

(TA=25℃ unless otherwise noted)

Fig. 1 Typical Forward Characteristics

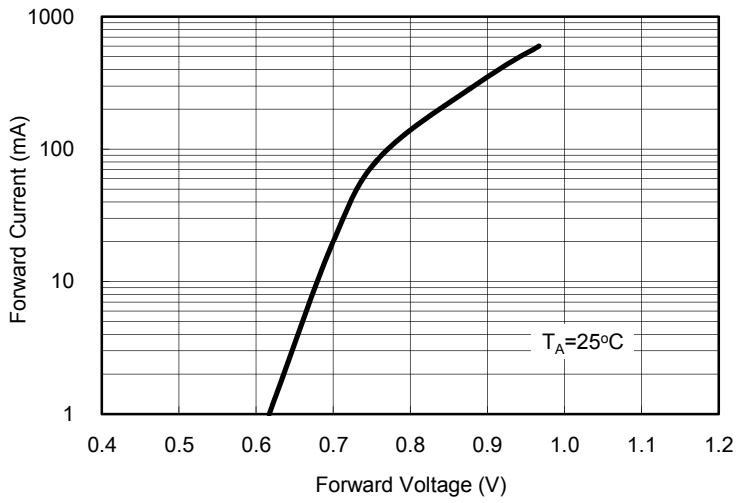


Fig. 2 Zener Breakdown Characteristics

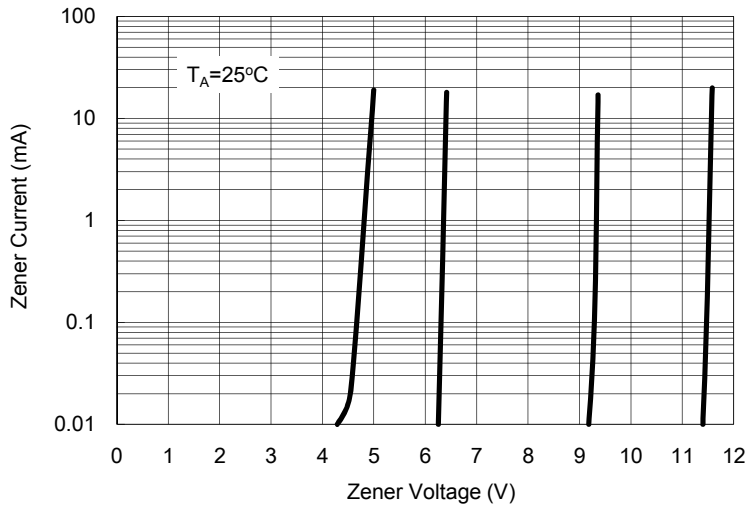


Fig. 3 Zener Breakdown Characteristics

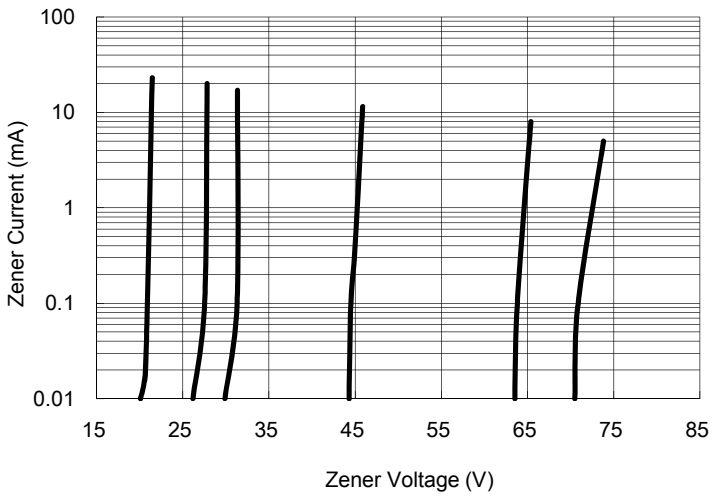


Fig. 4 Admissible Power Dissipation Curve

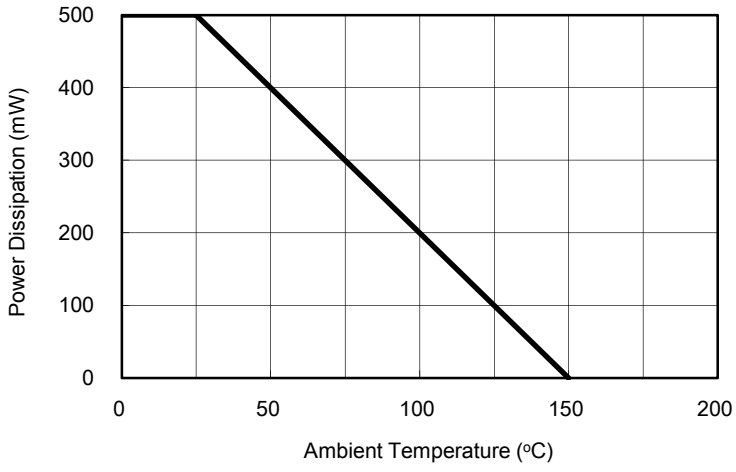


Fig. 5 Typical Capacitance

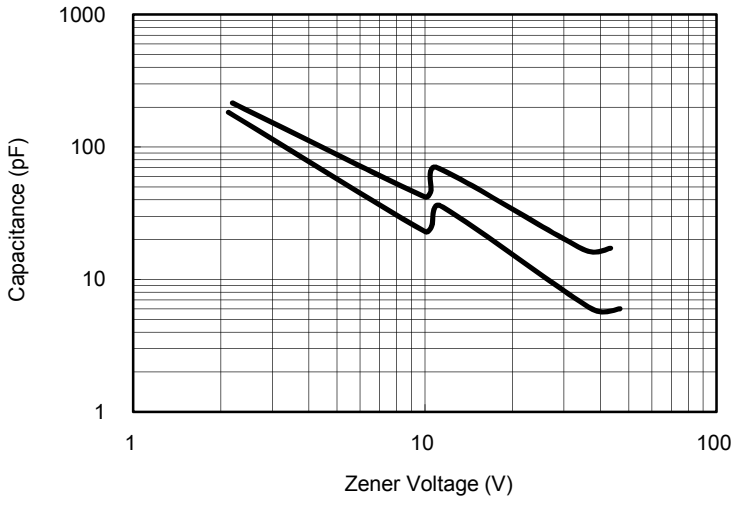
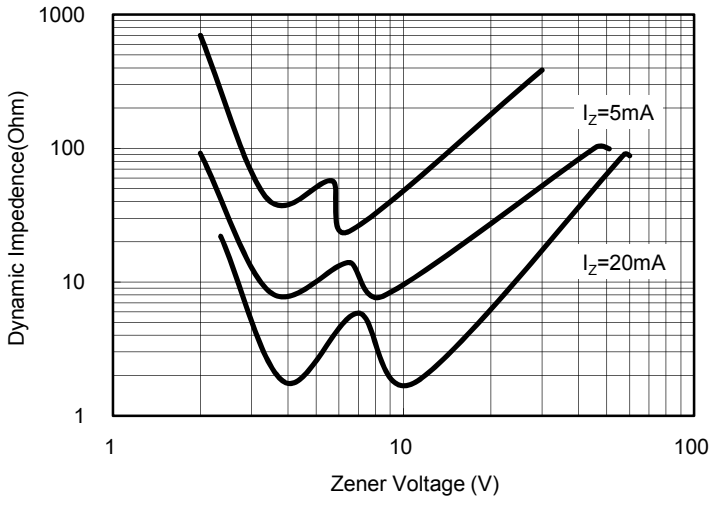


Fig. 6 Effect of Zener Voltage on Impedence



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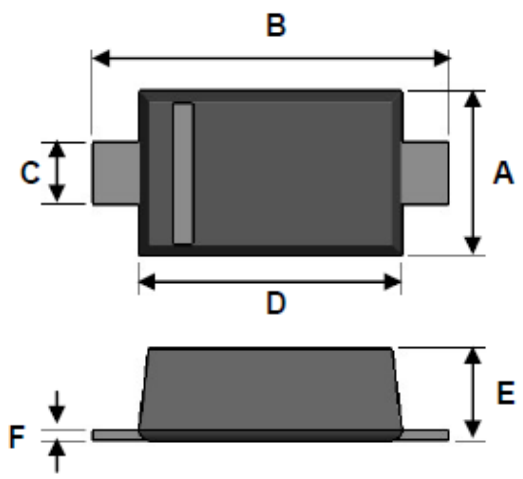
ORDERING INFORMATION					
PART NO.	MANUFACTURE CODE (Note1)	PACKING CODE	GREEN COMPOUND CODE	PACKAGE	PACKING
BZT52Bxxx (Note2)		RH	G	SOD-123F	3K / 7" Reel

Note1: Manufacture special control, if empty means no special control requirement.

Note2: "xxx" is Device Code from "2V4" thru "75", detail could follow the previous page

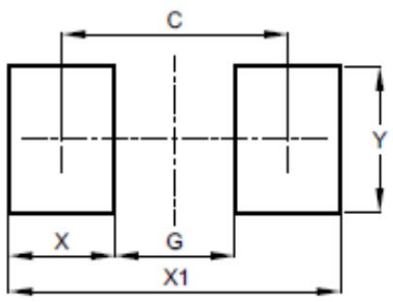
EXAMPLE					
PREFERRED P/N	PART NO.	MANUFACTURE CODE	PACKING CODE	GREEN COMPOUND CODE	DESCRIPTION
BZT52B2V4 RHG	BZT52B2V4		RH	G	Green compound
BZT52B2V4-B0 RHG	BZT52B2V4	B0	RH	G	Green compound
BZT52B2V4-L0 RHG	BZT52B2V4	L0	RH	G	Green compound

DIMENSIONS



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.50	1.70	0.059	0.067
B	3.30	3.90	0.130	0.154
C	0.50	0.70	0.020	0.028
D	2.50	2.70	0.098	0.106
E	0.80	1.15	0.031	0.045
F	0.05	0.20	0.002	0.008

SUGGESTED PAD LAYOUT



DIM.	Unit (mm)	Unit (inch)
	Typ.	Typ.
C	2.86	0.113
G	1.52	0.060
X	1.34	0.053
X1	4.20	0.165
Y	1.80	0.071

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