

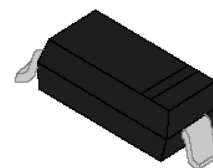


## Zener Diodes with Surge Current Specification: BZT52B Series

Rev.1.2

### FEATURE

- ✧ Silicon power zener diodes.
- ✧ Low zener impedance.
- ✧ 500mW rating on FR-4 or FR-5 board.
- ✧ Voltage range includes breakdown voltages from 5.1V to 43V with  $\pm 2\%$  for BZT52B series.
- ✧ Low profile surface-mount package.
- ✧ Zener and surge current specification.
- ✧ For use in stabilizing and clamping circuits with high power rating.



SOD-123



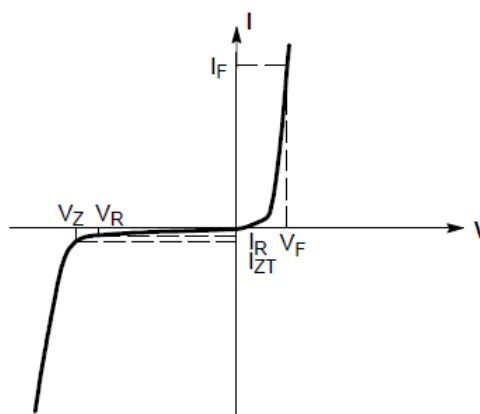
### ABSOLUTE MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

Parameter	Symbol	Max Value	Unit
Total power dissipation @ $T_L=75^\circ\text{C}$	$P_D$	500	mW
Thermal resistance junction to ambient (Note1)	$R_{\theta JA}$	330	$^\circ\text{C}/\text{W}$
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature range	$T_s$	-55 to +125	$^\circ\text{C}$

Note1: Device mounted on FR-4 PCB with minimum recommended pad layout

### ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ )

Symbol	Parameter
$V_Z$	Reverse zener voltage at $I_{ZT}$
$I_{ZT}$	Reverse current
$Z_{ZT}$	Maximum zener impedance at $I_{ZT}$
$I_R$	Reverse leakage current at $V_R$
$V_R$	Reverse voltage
$I_F$	Forward current
$V_F$	Forward voltage at $I_F$



Zener voltage regulator

## MARKING



2W8: Device Marking Code

BZT52B ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$  unless otherwise noted)Maximum  $V_F=0.9\text{V}$  at  $I_F=10\text{mA}$ 

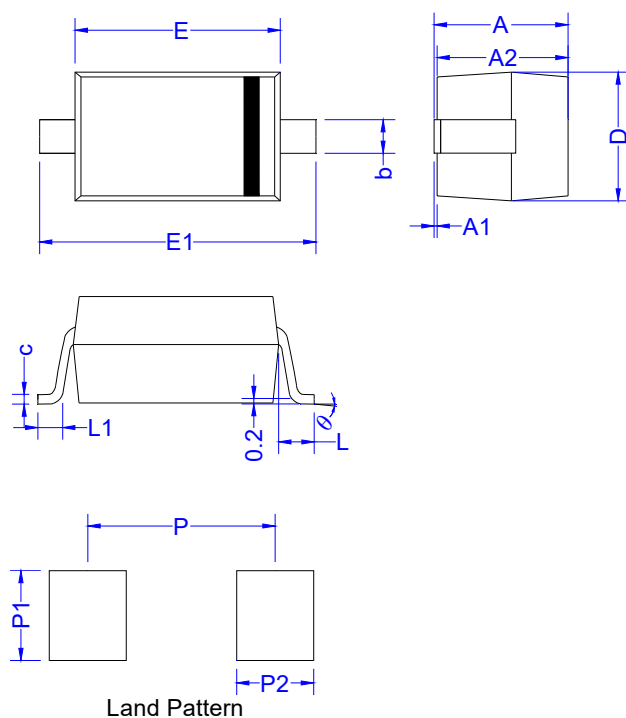
Type number	Zener voltage range at $I_{zt}$				Maximum zener impedance			Maximum reverse leakage current		Marking code
	Nom (Volts)	Min (Volts)	Max (Volts)	$I_{zt}$ (mA)	$Z_{zt}$ ( $\Omega$ )	$Z_{zk}$ ( $\Omega$ )	$I_{zk}$ (mA)	$I_R$ ( $\mu\text{A}$ )	$V_R$ (Volts)	
BZT52B5V1	5.1	5.00	5.20	5.0	60	480	1.0	2	2.0	2W8
BZT52B5V6	5.6	5.49	5.71	5.0	40	400	1.0	1	2.0	2W9
BZT52B6V2	6.2	6.08	6.32	5.0	10	150	1.0	3	4.0	2WA
BZT52B6V8	6.8	6.66	6.94	5.0	15	80	1.0	2	4.0	2WB
BZT52B7V5	7.5	7.35	7.65	5.0	15	80	1.0	1	5.0	2WC
BZT52B8V2	8.2	8.04	8.36	5.0	15	80	1.0	0.7	5.0	2WD
BZT52B9V1	9.1	8.92	9.28	5.0	15	100	1.0	0.5	6.0	2WE
BZT52B10	10	9.80	10.20	5.0	20	150	1.0	0.2	7.0	2WF
BZT52B11	11	10.78	11.22	5.0	20	150	1.0	0.1	8.0	2WG
BZT52B12	12	11.76	12.24	5.0	25	150	1.0	0.1	8.0	2WH
BZT52B13	13	12.74	13.26	5.0	30	170	1.0	0.1	8.0	2WI
BZT52B15	15	14.70	15.30	5.0	30	200	1.0	0.1	10.5	2WJ
BZT52B16	16	15.68	16.32	5.0	40	200	1.0	0.1	11.2	2WK
BZT52B18	18	17.64	18.36	5.0	45	225	1.0	0.1	12.6	2WL
BZT52B20	20	19.60	20.40	5.0	55	225	1.0	0.1	14.0	2WM
BZT52B22	22	21.56	22.44	5.0	55	250	1.0	0.1	15.4	2WN
BZT52B24	24	23.52	24.48	5.0	70	250	1.0	0.1	16.8	2WO
BZT52B27	27	26.46	27.54	2.0	80	300	0.5	0.1	18.9	2WP
BZT52B30	30	29.40	30.60	2.0	80	300	0.5	0.1	21.0	2WQ
BZT52B33	33	32.34	33.66	2.0	80	325	0.5	0.1	23.1	2WR
BZT52B36	36	35.28	36.72	2.0	90	350	0.5	0.1	25.2	2WS
BZT52B39	39	38.22	39.78	2.0	130	350	0.5	0.1	27.3	2WT
BZT52B43	43	42.14	43.86	2.0	100	700	1.0	0.1	32.0	2WU

Notes: Zener voltage tolerance of standard BZT52B series is  $\pm 2\%$

ORDERING INFORMATION

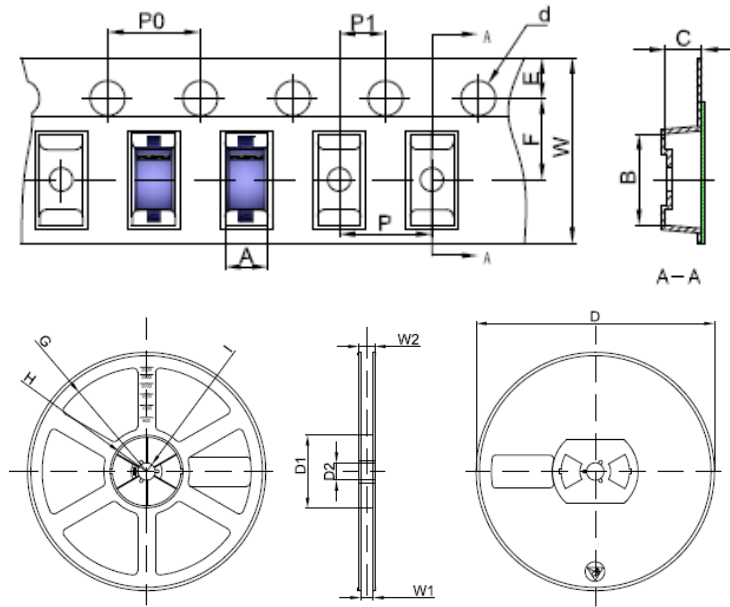
<p><b>BZT</b></p> <p>Zener Diode Series</p>	<p><b>52</b></p> <p><math>P_D: 500mW</math></p>	<p><b>B</b></p> <p>B:2% <math>V_z</math> Voltage tolerance</p>	<p><b>5V1</b></p> <p>Voltage:5.1V</p>
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PACKAGE MECHANICAL DATA



Symbol	Millimeter		Inches	
	Min	Max	Min	Max
A	1.05	1.25	0.041	0.049
A1	0.00	0.10	0.000	0.004
A2	1.05	1.15	0.041	0.045
b	0.45	0.65	0.018	0.026
c	0.08	0.15	0.003	0.006
D	1.50	1.70	0.059	0.067
E	2.60	2.80	0.102	0.110
E1	3.55	3.85	0.140	0.152
L	0.50REF.		0.020 REF.	
L1	0.25	0.45	0.010	0.018
theta	0°	8°	0°	8°
P	3.24		0.128	
P1	1.00		0.039	
P2	0.80		0.031	

**TAPE AND REEL SPECIFICATION-SOD-123**



Symbol	Millimeters	Inches
	Typ.	Typ.
A	1.85	0.073
B	3.95	0.156
C	1.57	0.062
d	Φ1.55	Φ 0.061
E	1.75	0.069
F	3.50	0.138
P0	4.0	0.157
P	4.0	0.157
P1	2.0	0.079
W	8.00	0.315
D	Φ178.0	Φ7.008
D1	54.40	2.142
D2	13.0	0.512
G	R78.0	R3.071
H	R25.60	R1.008
I	R6.50	R0.256
W1	9.50	0.374
W2	12.30	0.484

**Packaging description:**

SOD-123 parts are shipped in tape. The carrier tape is made from a dissipative(carbon filled) polycarbonate resin. The cover tape is a multilayer film(heat activated adhesive in nature)primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and made of polystyrene plastic(anti-static coated).

**ORDERING INFORMATION**

OUTLINE	PACKAGE	REEL SIZE	QUANTITY PER REEL
TAPING	SOD-123	7 Inch	3,000PCS

**RATINGS AND CHARACTERISTICS CURVES** ( $T_A=25^{\circ}\text{C}$ , unless otherwise noted)

Fig.1 Power dissipation vs lead temperature

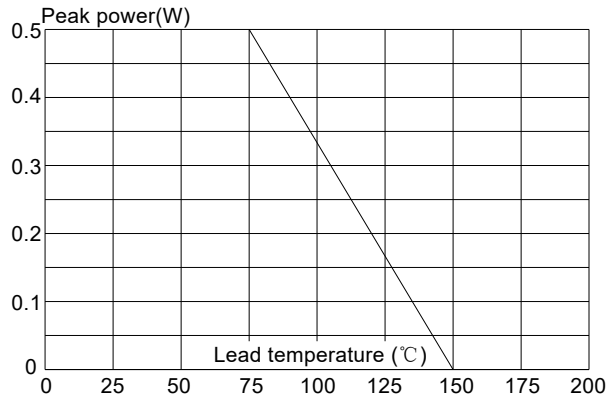


Fig.2 Zener breakdown characteristics

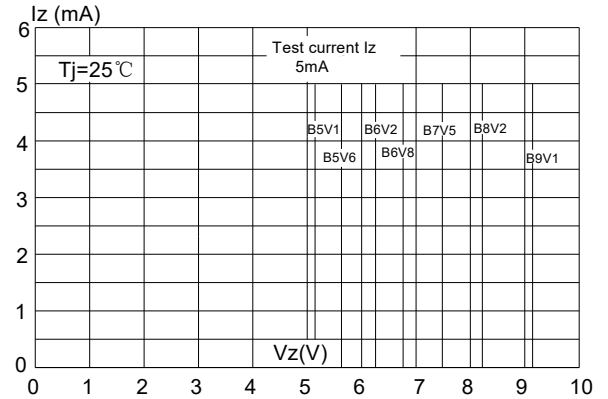


Fig.3 Zener breakdown characteristics

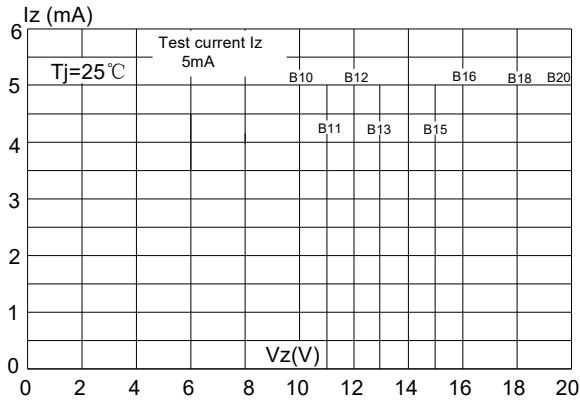
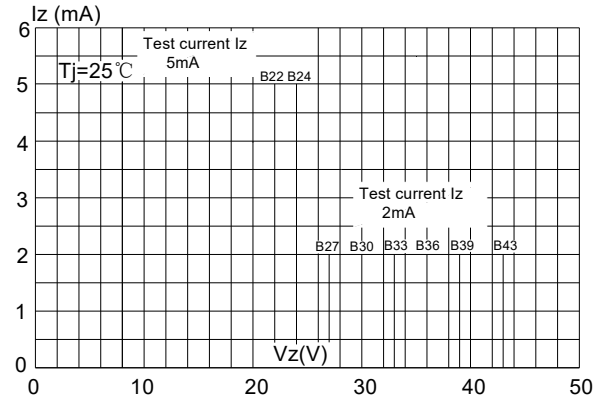


Fig.4 Zener breakdown characteristics




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