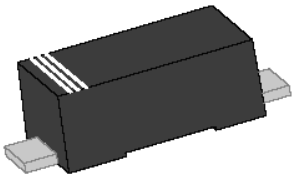
Zener Diodes with Surge Current Specification：BZD52C Series

Rev.3.8

FEATURE

- ✧ Silicon power zener diodes.
- ✧ Low zener impedance.
- ✧ 500mW rating on FR-4 or FR-5 board.
- ✧ Voltage range includes breakdown voltages from 6.8V to 100V with ±5% for BZD52C series.
- ✧ Low profile surface-mount package.
- ✧ Zener and surge current specification.
- ✧ For use in stabilizing and clamping circuits with high power rating.
- ✧ Meets MSL level 1, per J-STD-020, LF maximum peak of 260℃.



SOD-123FL

Symbol

Uni-directional

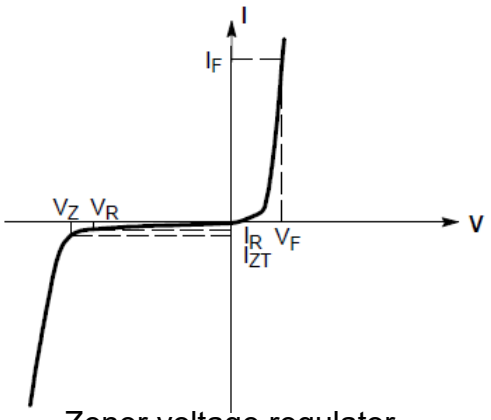
ABSOLUTE MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

Parameter	Symbol	Max Value	Unit
Total power dissipation @ 75℃	P_D	500	mW
Thermal resistance junction to ambient (Note1)	$R_{\theta JA}$	330	℃/W
Junction temperature	T_J	150	℃
Storage temperature range	T_S	-55 to+150	℃
Operating temperature range	T_{OP}	-55 to+150	℃
Peak pulse power dissipation at 10/1000μs waveform	P_{PP}	200	W

Note1：1.Device mounted on FR-4 PCB with minimum recommended pad layout

ELECTRICAL CHARACTERISTICS (T_A=25℃)

Symbol	Parameter
V_Z	Reverse zener voltage at I_{zt}
I_{zt}	Reverse current
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

ZWD: Device Marking Code

BZD52C ELECTRICAL CHARACTERISTICS (T_A=25℃ unless otherwise noted)

Maximum V_F=0.9V at I_F=10mA

Type number	Zener voltage range at I_{zt}				Maximum zener impedance			Maximum reverse leakage current		Junction capacitance	Marking code
	Nom (Volts)	Min (Volts)	Max (Volts)	I_{zt} (mA)	Z_{zt} (Ω)	Z_{zk} (Ω)	I_{zk} (mA)	I_R (μA)	V_R (Volts)	Typ (pF)	
BZD52C6V8	6.8	6.46	7.14	5.0	15	80	1.0	2	4.0	1700	ZWD
BZD52C7V5	7.5	7.13	7.88	5.0	15	80	1.0	1	5.0	1300	ZWE
BZD52C8V2	8.2	7.79	8.61	5.0	15	80	1.0	0.7	5.0	1000	ZWF
BZD52C9V1	9.1	8.65	9.56	5.0	15	100	1.0	0.5	6.0	450	ZWG
BZD52C10	10	9.5	10.5	5.0	20	150	1.0	0.2	7.0	430	ZWH
BZD52C11	11	10.5	11.6	5.0	20	150	1.0	0.1	8.0	420	ZWI
BZD52C12	12	11.4	12.6	5.0	25	150	1.0	0.1	8.0	410	ZWJ
BZD52C13	13	12.4	13.7	5.0	30	170	1.0	0.1	8.0	400	ZWK
BZD52C15	15	14.3	15.8	5.0	30	200	1.0	0.1	10.5	380	ZWL
BZD52C16	16	15.2	16.8	5.0	40	200	1.0	0.1	11.2	360	ZWM
BZD52C18	18	17.1	18.9	5.0	45	225	1.0	0.1	12.6	340	ZWN
BZD52C20	20	19.0	21.0	5.0	55	225	1.0	0.1	14.0	320	ZWO
BZD52C22	22	20.9	23.1	5.0	55	250	1.0	0.1	15.4	300	ZWP
BZD52C24	24	22.8	25.2	5.0	70	250	1.0	0.1	16.8	290	ZWQ
BZD52C27	27	25.7	28.4	2.0	80	300	0.5	0.1	18.9	280	ZWR
BZD52C30	30	28.5	31.5	2.0	80	300	0.5	0.1	21.0	260	ZWS
BZD52C33	33	31.4	34.7	2.0	80	325	0.5	0.1	23.1	245	ZWT
BZD52C36	36	34.2	37.8	2.0	90	350	0.5	0.1	25.2	230	ZWU
BZD52C39	39	37.1	41.0	2.0	130	350	0.5	0.1	27.3	220	ZWV
BZD52C43	43	40.9	45.2	2.0	100	700	0.5	0.1	32.0	200	ZWW
BZD52C47	47	44.7	49.4	2.0	100	750	0.5	0.1	35.0	190	ZWX
BZD52C51	51	48.5	53.6	2.0	100	750	0.5	0.1	38.0	180	ZWY
BZD52C56	56	53.2	58.8	2.0	150	1000	0.5	0.1	39.2	170	ZNA
BZD52C62	62	58.9	65.1	1.0	150	1000	0.5	0.1	43.4	160	ZNB
BZD52C68	68	64.6	71.4	1.0	200	1000	0.5	0.1	47.6	150	ZNC
BZD52C75	75	71.3	78.8	1.0	250	1500	0.5	0.1	52.5	130	ZND
BZD52C82	82	77.9	86.1	0.5	250	1500	0.25	0.1	57.4	120	ZNE

BZD52C ELECTRICAL CHARACTERISTICS (T_A=25℃ unless otherwise noted, continued)

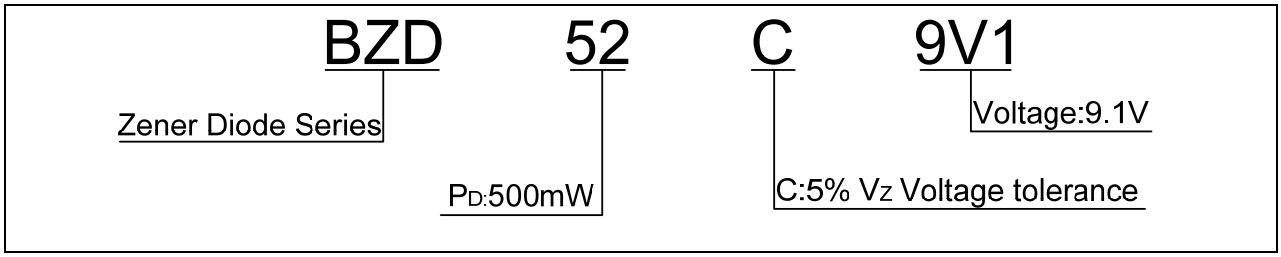
Maximum V_F=0.9V at I_F=10mA

Type number	Zener voltage range at I_{zt}				Maximum zener impedance			Maximum reverse leakage current		Junction capacitance	Marking code
	Nom (V)	Min (V)	Max (V)	I_{zt} (mA)	Z_{zt} (Ω)	Z_{zk} (Ω)	I_{zk} (mA)	I_R (μA)	V_R (V)	Typ (pF)	
BZD52C91	91	86.5	95.6	0.5	300	1700	0.25	0.1	63.7	110	ZNF
BZD52C100	100	95	105	0.5	300	1700	0.25	0.1	70.0	100	ZNG

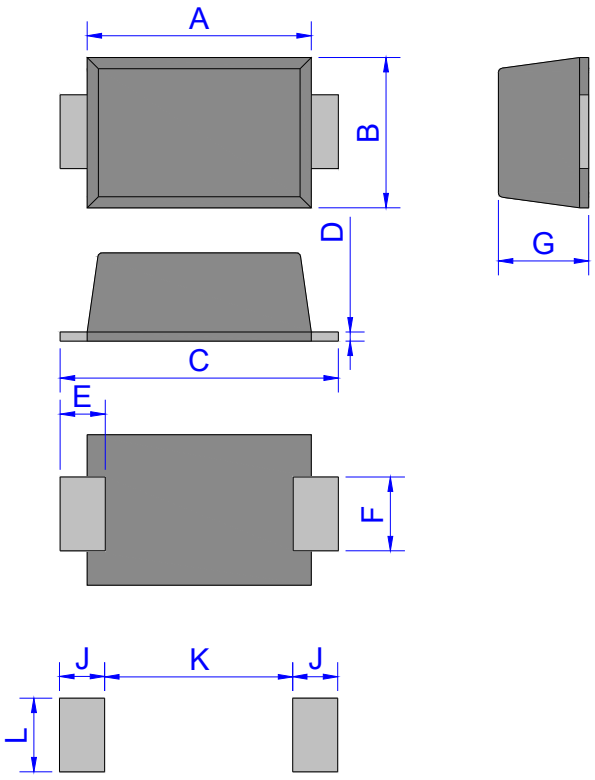
Notes: Zener voltage tolerance of standard BZD52C series is ±5%

Junction capacitance is measured in V_R=0V, f=1MHz.

ORDERING INFORMATION



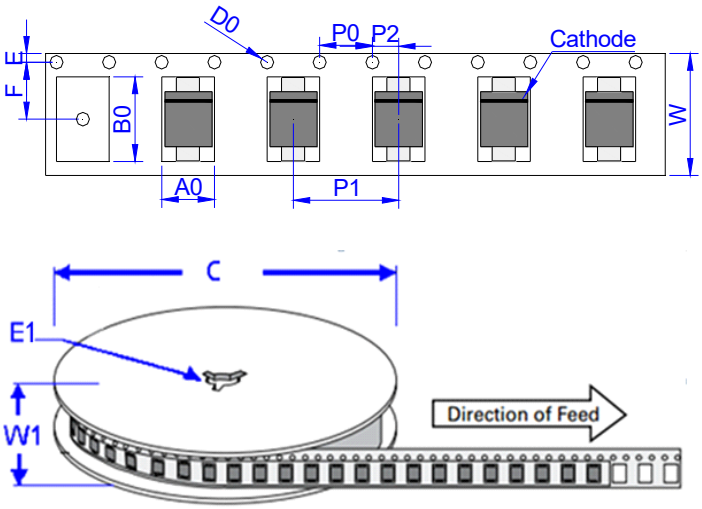
PACKAGE MECHANICAL DATA



SOD-123FL

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.60	3.00	0.102	0.118
B	1.60	2.00	0.063	0.079
C	3.45	3.95	0.136	0.156
D	0.10	0.25	0.004	0.01
E	0.3	0.9	0.012	0.035
F	0.80	1.20	0.031	0.047
G	0.95	1.35	0.037	0.053
J	1.30		0.051	
K		1.70		0.067
L	1.30		0.051	

TAPE AND REEL SPECIFICATION-SOD-123FL



Ref.	Dimensions	
	Millimeters	Inches
A0	1.95 ± 0.3	0.077± 0.012
B0	3.95 ± 0.3	0.156 ± 0.012
C	178	7.0
D0	1.55 ± 0.1	0.061 ± 0.004
E	1.75 ± 0.2	0.069 ± 0.008
E1	13.3 ± 0.3	0.524± 0.012
F	3.50 ± 0.2	0.138 ± 0.008
P0	4.00 ± 0.2	0.157 ± 0.008
P1	4.00 ± 0.2	0.157 ± 0.008
P2	2.00 ± 0.2	0.079 ± 0.008
W	8.0± 0.2	0.315 ± 0.008
W1	11.5 ± 1.0	0.453 ± 0.039

PART No.	UNIT WEIGHT (g/PCS) typ.	REEL (PCS)	PER CARTON (PCS)	DESCIPTION
BZD52C Series	0.0144	3,000	150,000	7 inch reel pack

RATINGS AND CHARACTERISTICS CURVES (T_A=25ºC, unless otherwise noted)

Fig.1 Power dissipation vs lead temperature

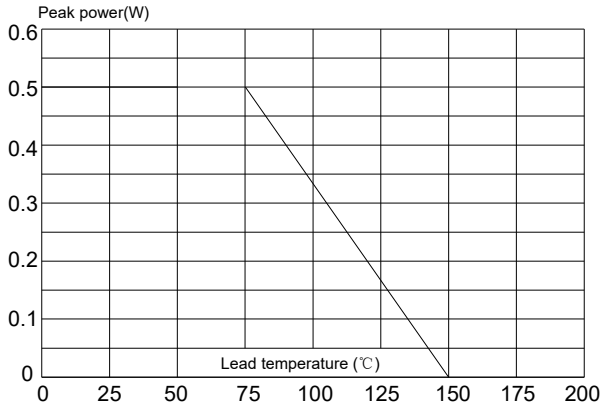


Fig.2 Zener breakdown characteristics

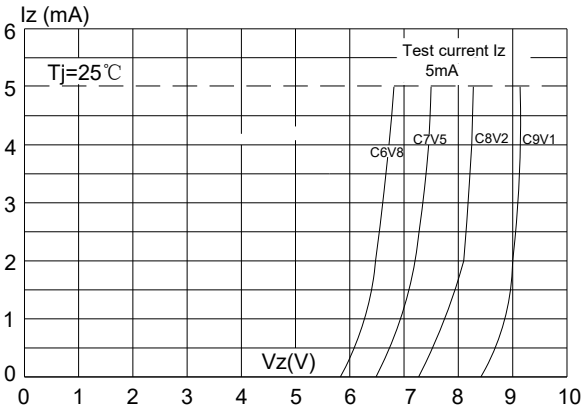


Fig.3 Zener breakdown characteristics

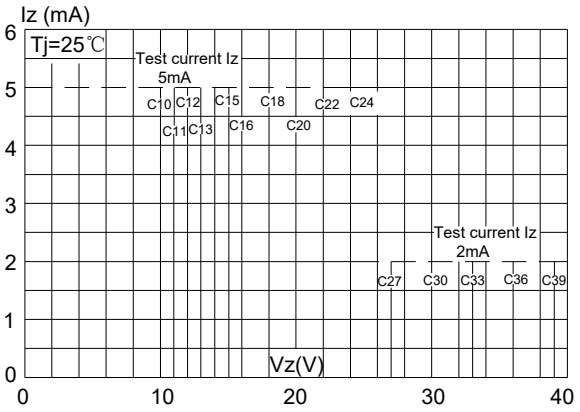


Fig.4 Zener breakdown characteristics

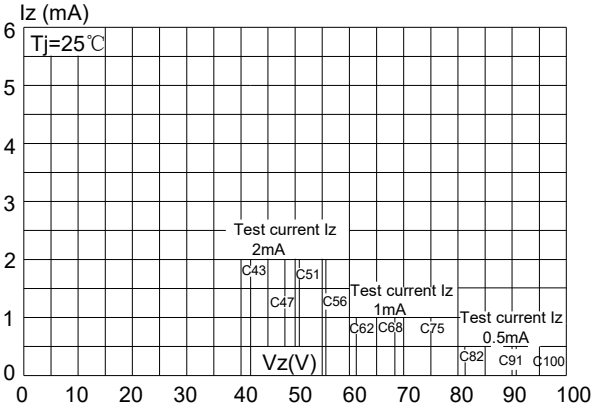
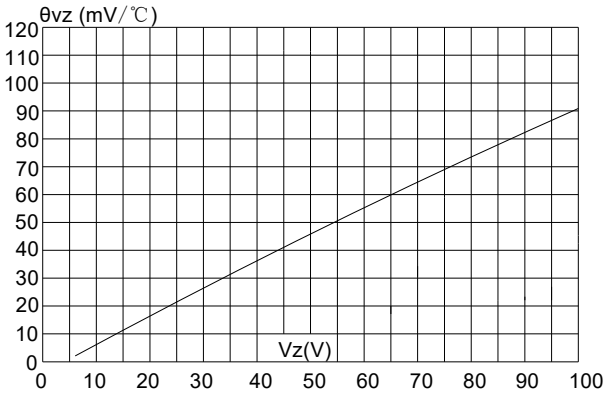


Fig.5 Temperature coefficient vs Zener voltage



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