

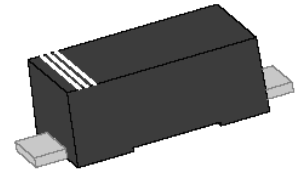


Zener Diodes with Surge Current Specification: BZD59C Series

Rev.3.7

FEATURE

- ✧ Silicon power zener diodes.
- ✧ Low zener impedance.
- ✧ 1500mW rating on FR-4 or FR-5 board.
- ✧ Voltage range includes breakdown voltages from 6.8V to 100V with $\pm 5\%$ for BZD59C 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°C.



SOD-123FL



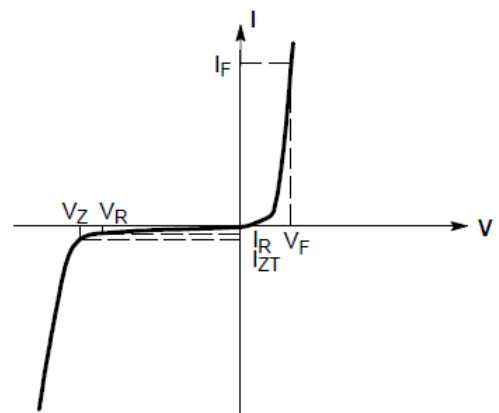
ABSOLUTE MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

Parameter	Symbol	Max Value	Unit
Total power dissipation @ 75°C	P_D	1500	mW
Thermal resistance junction to ambient (Note1)	$R_{\theta JA}$	330	°C/W
Junction temperature	T_J	150	°C
Storage temperature range	T_S	-55 to +150	°C
Operating temperature range	T_{OP}	-55 to +150	°C
Peak pulse power dissipation at 10/1000µs waveform	P_{PP}	300	W

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

ELECTRICAL CHARACTERISTICS

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



ZZD: Device Marking Code

BZD59C 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} (Ω)	Z_{zk} (Ω)	I_{zk} (mA)	I_R (μA)	V_R (Volts)	
BZD59C6V8	6.8	6.46	7.14	55.1	2.5	200	1.0	20	5.2	ZZD
BZD59C7V5	7.5	7.13	7.88	50.0	3.0	400	0.5	10	6.0	ZZE
BZD59C8V2	8.2	7.79	8.61	45.7	3.5	400	0.5	10	6.5	ZZF
BZD59C9V1	9.1	8.65	9.56	41.2	4.0	500	0.5	10	7.0	ZZG
BZD59C10	10	9.5	10.5	37.5	4.5	500	0.25	10	8.0	ZZH
BZD59C11	11	10.5	11.6	34.1	5.5	550	0.25	5	8.4	ZZI
BZD59C12	12	11.4	12.6	31.2	6.5	550	0.25	1	9.1	ZZJ
BZD59C13	13	12.4	13.7	28.8	7.0	550	0.25	1	9.9	ZZK
BZD59C15	15	14.3	15.8	25.0	9.0	600	0.25	1	11.4	ZZL
BZD59C16	16	15.2	16.8	23.4	10	600	0.25	1	12.2	ZZM
BZD59C18	18	17.1	18.9	20.8	12	650	0.25	1	13.7	ZZN
BZD59C20	20	19	21	18.7	14	650	0.25	1	15.2	ZZO
BZD59C22	22	20.9	23.1	17.0	17.5	650	0.25	1	16.7	ZZP
BZD59C24	24	22.8	25.2	15.6	19	700	0.25	1	18.2	ZZQ
BZD59C27	27	25.7	28.4	13.9	23	700	0.25	1	20.5	ZZR
BZD59C30	30	28.5	31.5	12.5	28	750	0.25	1	22.8	ZZS
BZD59C33	33	31.4	34.7	11.4	33	800	0.25	1	25.1	ZZT
BZD59C36	36	34.2	37.8	10.4	38	850	0.25	1	27.4	ZZU
BZD59C39	39	37.1	41.0	9.6	45	900	0.25	1	29.7	ZZV
BZD59C43	43	40.9	45.2	8.7	53	950	0.25	1	32.7	ZZW
BZD59C47	47	44.7	49.4	8.0	67	1000	0.25	1	35.8	ZZX
BZD59C51	51	48.5	53.6	7.3	70	1100	0.25	1	38.8	ZZY
BZD59C56	56	53.2	58.8	6.7	86	1300	0.25	1	42.6	ZOA
BZD59C62	62	58.9	65.1	6.0	100	1500	0.25	1	47.1	ZOB
BZD59C68	68	64.6	71.4	5.5	120	1700	0.25	1	51.7	ZOC
BZD59C75	75	71.3	78.8	5.0	140	1900	0.25	1	57.0	ZOD

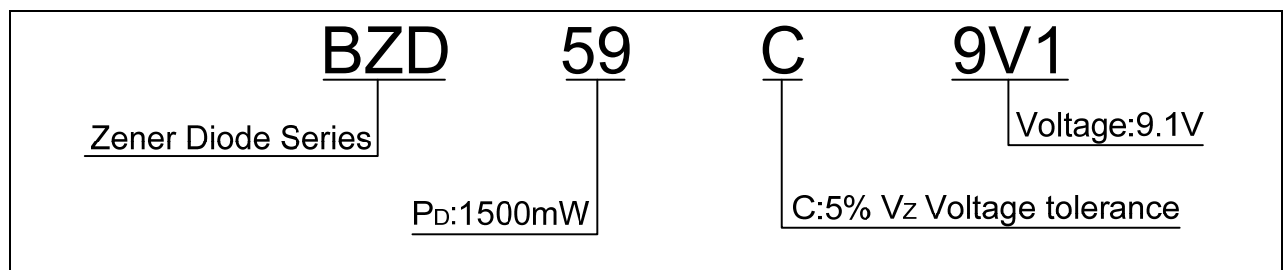
BZD59C ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted, continued)

Maximum $V_F=0.9\text{V}$ at $I_F=10\text{mA}$

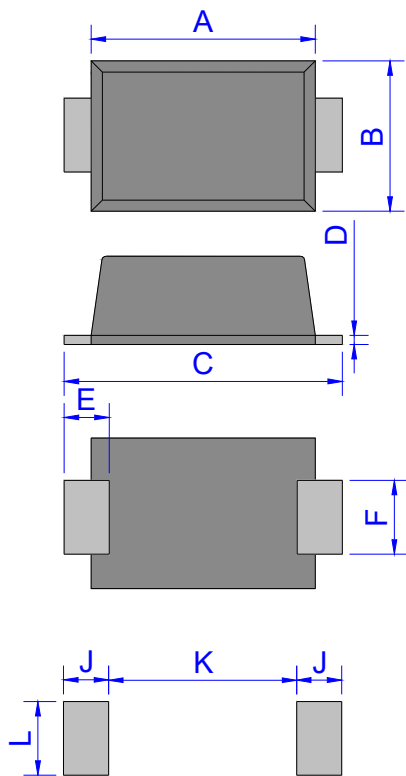
Type number	Zener voltage range at I_{zt}				Maximum zener impedance			Maximum reverse leakage current		Marking code
	Nom (Volts)	Min (Volts)	Max (Volts)	I_{zt} (mA)	Z_{zt} (Ω)	Z_{zk} (Ω)	I_{zk} (mA)	I_R (μA)	V_R (Volts)	
BZD59C82	82	77.9	86.1	4.6	160	2100	0.25	1	62.3	ZOE
BZD59C91	91	86.5	95.6	4.1	180	2300	0.25	1	69.2	ZOF
BZD59C100	100	95	105	3.8	200	2500	0.25	1	76.0	ZOG

Notes: Zener voltage tolerance of standard BZD59C series is $\pm 5\%$

ORDERING INFORMATION



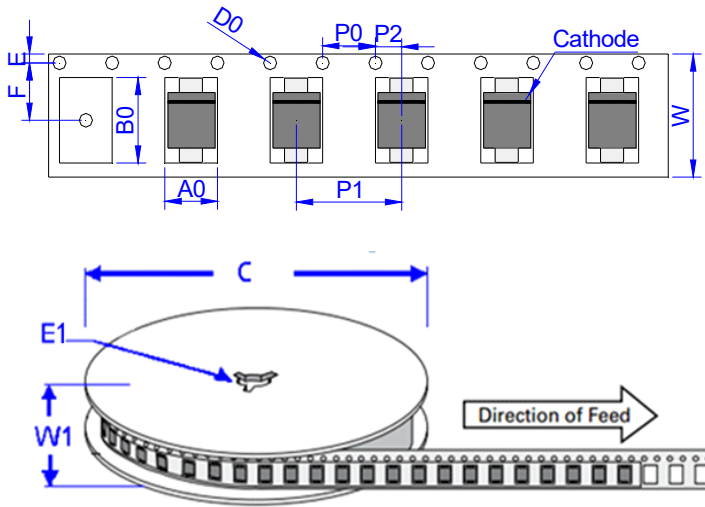
PACKAGE MECHANICAL DATA



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

OUTLINE	UNIT WEIGHT (g/PCS) typ.	REEL (PCS)	PER CARTON (PCS)	DESCRIPTION
BZD59C Series	0.0144	3,000	150,000	7 inch reel pack

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

Fig.1 Power dissipation vs lead temperature

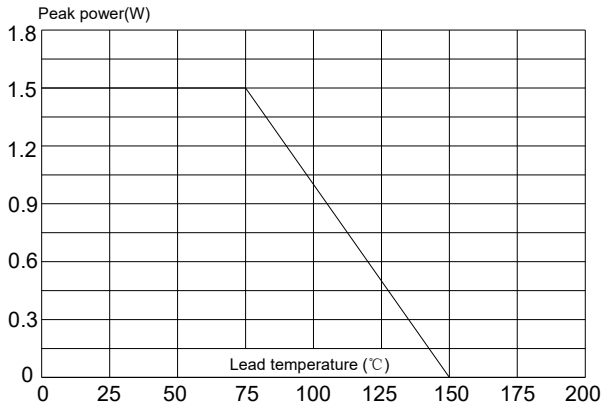


Fig.2 Zener breakdown characteristics

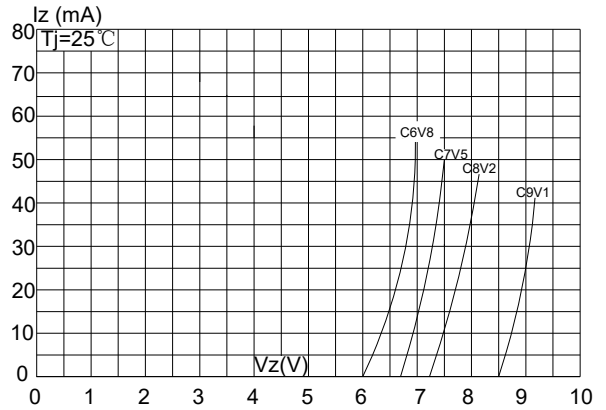


Fig.3 Zener breakdown characteristics

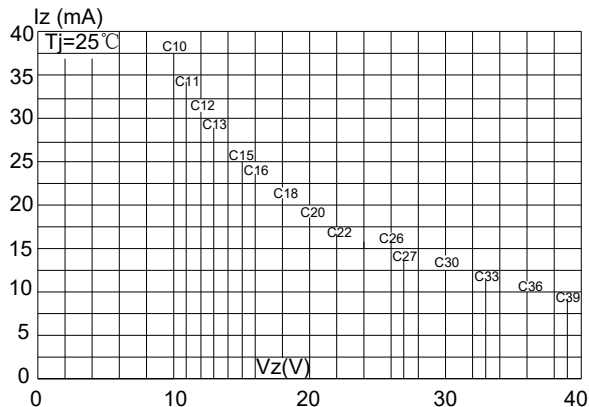
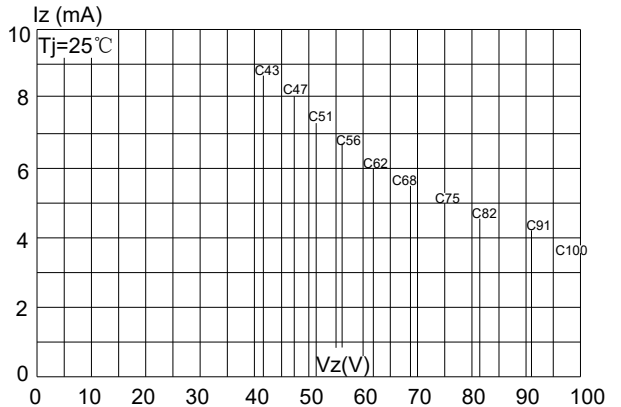


Fig.4 Zener breakdown characteristics




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