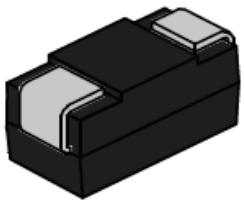
Zener Diodes with Surge Current Specification: SMBZTC Series

Rev.5.5

FEATURE

- ✧ Silicon power zener diodes.
- ✧ Low zener impedance.
- ✧ 5000mW rating on FR-4 or FR-5 board.
- ✧ Voltage range includes breakdown voltages from 6.8V to 200V with ±5% for SMBZTC 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℃.



SMB

Symbol

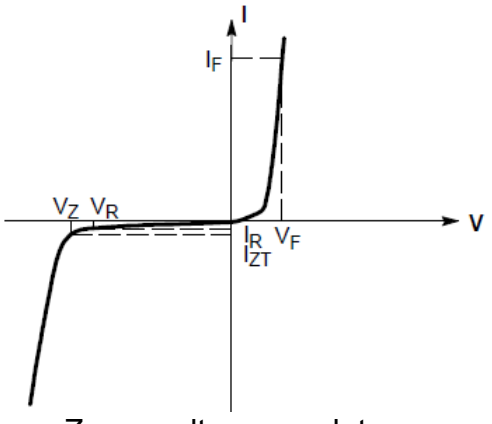
ABSOLUTE MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

Parameter	Symbol	Max Value	Unit
Total power dissipation @75℃	P_D	5000	mW
Thermal resistance junction to ambient (Note1)	$R_{\theta JA}$	90	℃/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}	600	W

Note1: Device mounted on FR-4 PCB

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

ZTA: Device Marking Code
1409: In ninth week, 2014

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

Maximum V_F=1.2V at I_F=200mA

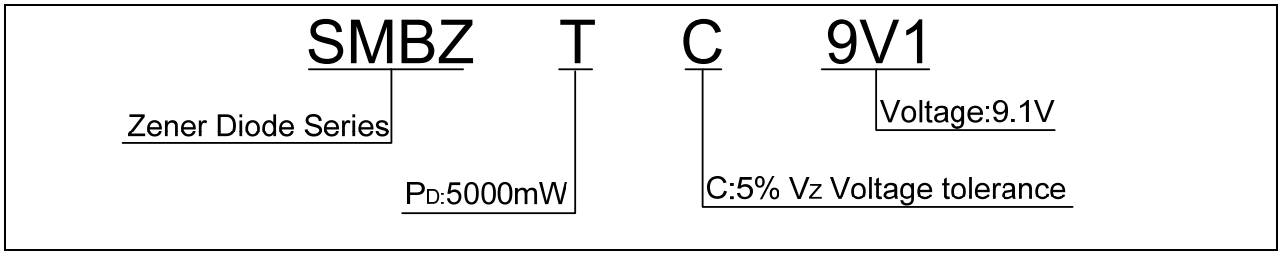
Type number	Zener voltage range at I_{zt}				Maximum zener impedance			Maximum reverse leakage current		Marking code
	Nom (Volts)	Min (Volts)	Max (Volts)	I_{zt} (mA)	Z_{zt} (Ω)	Z_{zk} (Ω)	I_{zk} (mA)	I_R (uA)	V_R (Volts)	
SMBZTC6V8	6.8	6.46	7.14	175	1.0	200	1.0	100	4.9	ZTA
SMBZTC7V5	7.5	7.13	7.88	175	1.5	200	1.0	50	5.4	ZTB
SMBZTC8V2	8.2	7.79	8.61	150	1.5	200	1.0	25	5.9	ZTC
SMBZTC9V1	9.1	8.65	9.56	125	2.0	200	1.0	25	6.3	ZTD
SMBZTC10	10	9.5	10.5	125	2.0	150	1.0	25	6.6	ZTE
SMBZTC11	11	10.5	11.6	100	2.0	125	1.0	10	7.2	ZTF
SMBZTC12	12	11.4	12.6	100	2.5	125	1.0	5	8.0	ZTG
SMBZTC13	13	12.4	13.7	100	2.5	125	1.0	1	8.6	ZTH
SMBZTC15	15	14.3	15.8	75	2.5	100	1.0	1	9.4	ZTI
SMBZTC16	16	15.2	16.8	75	2.5	75	1.0	1	10.1	ZTJ
SMBZTC18	18	17.1	18.9	70	2.5	75	1.0	1	10.8	ZTK
SMBZTC20	20	19.0	21.0	65	2.5	75	1.0	1	11.5	ZTL
SMBZTC22	22	20.9	23.1	65	2.5	75	1.0	1	12.2	ZTM
SMBZTC24	24	22.8	25.2	65	2.5	75	1.0	1	13.0	ZTN
SMBZTC25	25	23.8	26.3	50	3.0	75	1.0	1	13.4	ZUO
SMBZTC27	27	25.7	28.4	50	3.0	75	1.0	1	13.7	ZTO
SMBZTC30	30	28.5	31.5	50	3.0	75	1.0	1	14.4	ZTP
SMBZTC33	33	31.4	34.7	50	3.5	75	1.0	1	15.8	ZTQ
SMBZTC36	36	34.2	37.8	50	3.5	100	1.0	1	17.3	ZTR
SMBZTC39	39	37.1	41.0	50	4.0	110	1.0	1	18.0	ZTS
SMBZTC43	43	40.9	45.2	50	5.0	120	1.0	1	19.4	ZTT
SMBZTC47	47	44.7	49.4	50	6.0	130	1.0	1	20.1	ZTU
SMBZTC51	51	48.5	53.6	40	8.0	140	1.0	1	21.6	ZTV
SMBZTC56	56	53.2	58.8	40	10	150	1.0	1	23.8	ZTW
SMBZTC62	62	58.9	65.1	30	11	160	1.0	1	25.9	ZTX
SMBZTC68	68	64.6	71.4	30	14	170	1.0	1	28.1	ZTY
SMBZTC75	75	71.3	78.8	30	20	190	1.0	1	31.0	ZTZ
SMBZTC82	82	77.9	86.1	15	65	720	1.0	1	59.0	ZUA

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

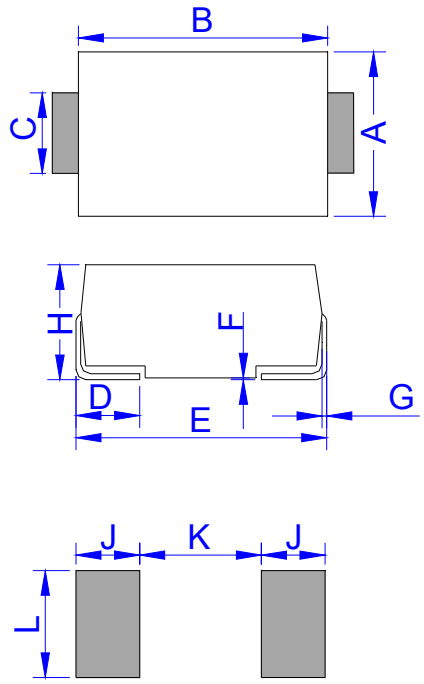
Maximum V_F=1.2V at I_F=200mA

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 (uA)	V_R (Volts)	
SMBZTC87	87	82.7	91.4	15	75	760	1.0	1	63.0	ZUB
SMBZTC91	91	86.5	95.6	15	75	760	1.0	1	65.0	ZUC
SMBZTC100	100	95	105	12	90	800	1.0	1	72.0	ZUD
SMBZTC110	110	105	116	12	125	1000	1.0	1	79.2	ZUE
SMBZTC120	120	114	126	10	170	1150	1.0	1	86.4	ZUF
SMBZTC130	130	124	137	10	190	1250	1.0	1	93.2	ZUG
SMBZTC140	140	133	147	8	230	1500	1.0	1	101	ZUH
SMBZTC150	150	143	158	8	330	1500	1.0	1	108	ZUI
SMBZTC160	160	152	168	8	350	1650	1.0	1	115	ZUJ
SMBZTC170	170	162	179	8	380	1750	1.0	1	122	ZUK
SMBZTC180	180	171	189	5	430	1750	1.0	1	130	ZUL
SMBZTC190	190	181	200	5	450	1850	1.0	1	137	ZUM
SMBZTC200	200	190	210	5	480	1850	1.0	1	144	ZUN

ORDERING INFORMATION



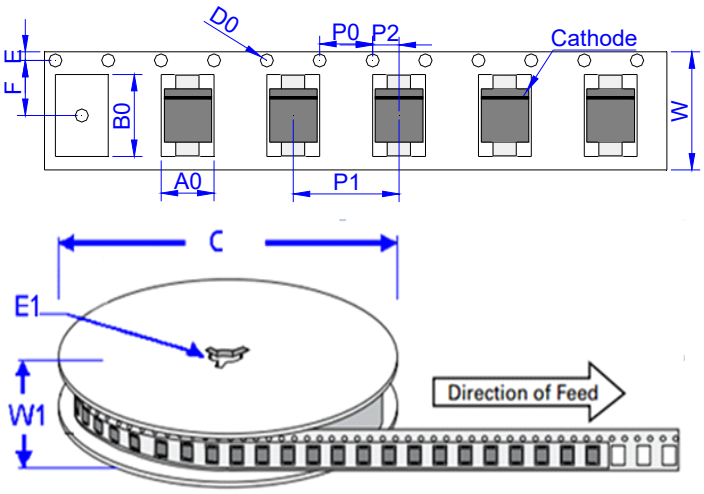
PACKAGE MECHANICAL DATA



DO-214AA (SMB)

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	3.30	3.94	0.130	0.155
B	4.30	4.80	0.169	0.189
C	1.90	2.20	0.075	0.087
D	0.95	1.52	0.037	0.060
E	5.20	5.60	0.205	0.220
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.10	2.40	0.083	0.094
J	2.20		0.087	
K		2.60		0.102
L	2.30		0.091	

TAPE AND REEL SPECIFICATION-SMB



Ref.	Dimensions	
	Millimeters	Inches
A0	3.76 ± 0.3	0.148 ± 0.012
B0	5.69± 0.3	0.224 ± 0.012
C	330.0	13.0
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	5.5 ± 0.2	0.217 ± 0.008
P0	4.00 ± 0.2	0.157 ± 0.008
P1	8.00 ± 0.2	0.3145 ± 0.008
P2	2.00 ± 0.2	0.079 ± 0.008
W	12.0± 0.2	0.472 ± 0.008
W1	15.7 ± 2.0	0.618 ± 0.079

PART No.	UNIT WEIGHT (g/PCS) typ.	REEL (PCS)	PER CARTON (PCS)	DESCRIPTION
SMBZTC Series	0.098	3,000	48,000	13 inch reel pack

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

Fig.1 Power dissipation vs lead temperature

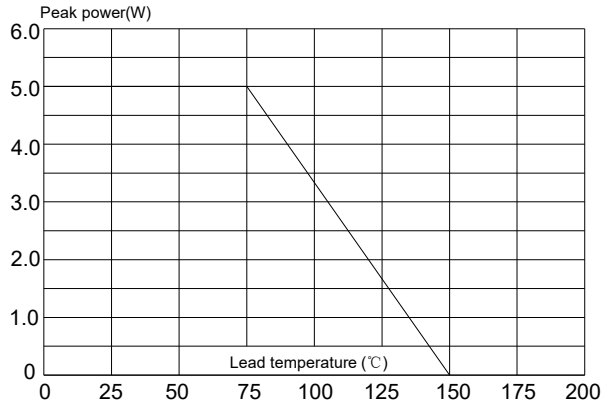


Fig.2 Zener breakdown characteristics

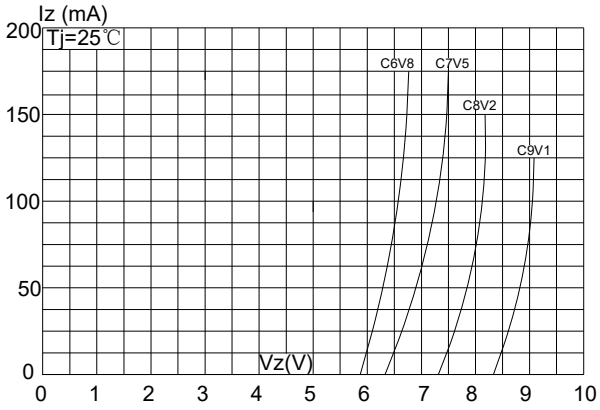


Fig.3 Zener breakdown characteristics

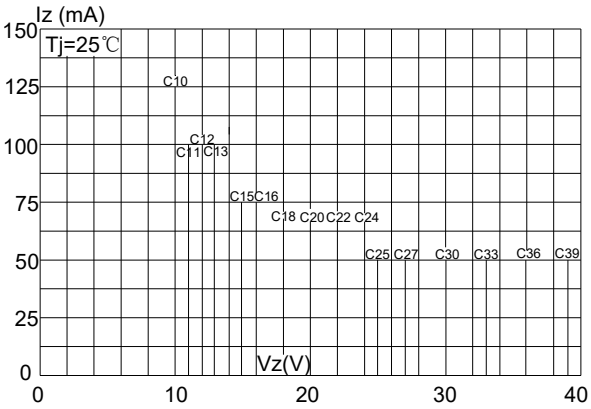


Fig.4 Zener breakdown characteristics

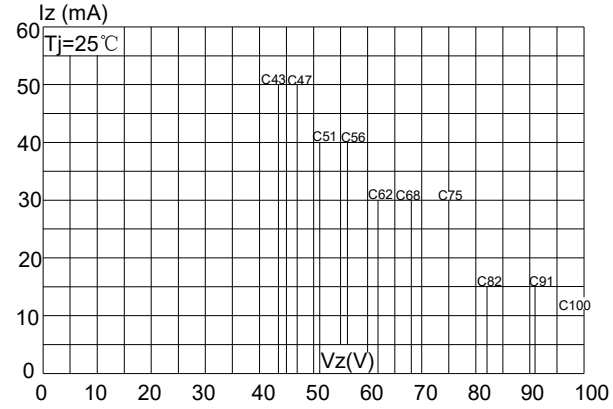
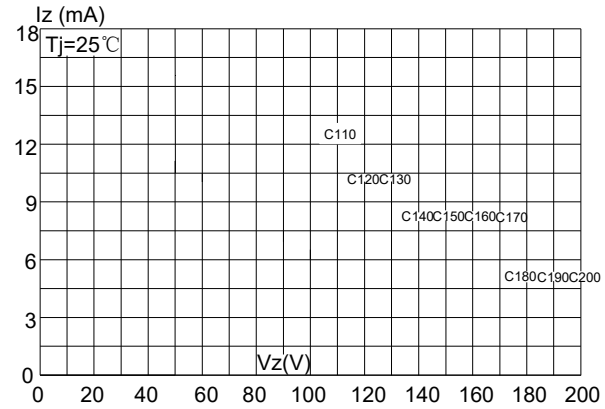


Fig.5 Zener breakdown characteristics



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