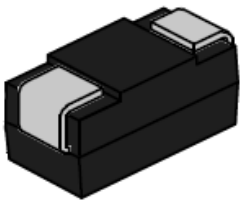
Zener Diodes with Surge Current Specification：SMBZSC Series Rev.3.5

FEATURE



SMB

Symbol

- ✧ Silicon power zener diodes.
- ✧ Low zener impedance.
- ✧ 3000mW rating on FR-4 or FR-5 board.
- ✧ Voltage range includes breakdown voltages from 6.8V to 200V with ±5% for SMBZSC 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℃.

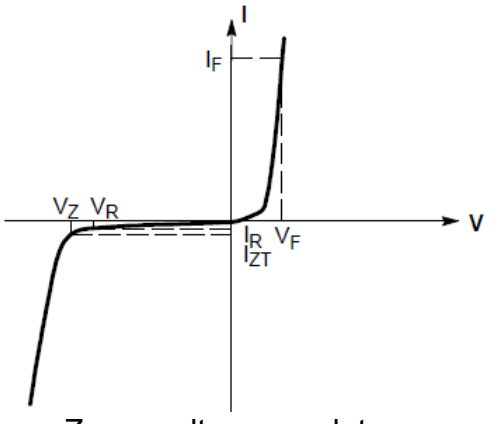
ABSOLUTE MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

Parameter	Symbol	Max Value	Unit
Total power dissipation @ 75℃	P_D	3000	mW
Thermal resistance junction to ambient (Note1)	$R_{\theta JA}$	226	℃/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}	400	W

Note1: Device mounted on FR-4 PCB

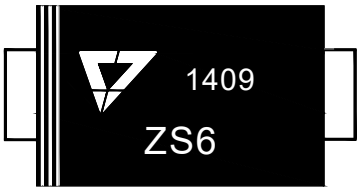
ELECTRICAL CHARACTERISTICS

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



ZS6: Device Marking Code
1409: In ninth week, 2014

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

Maximum V_F=1.2V at I_F=200mA

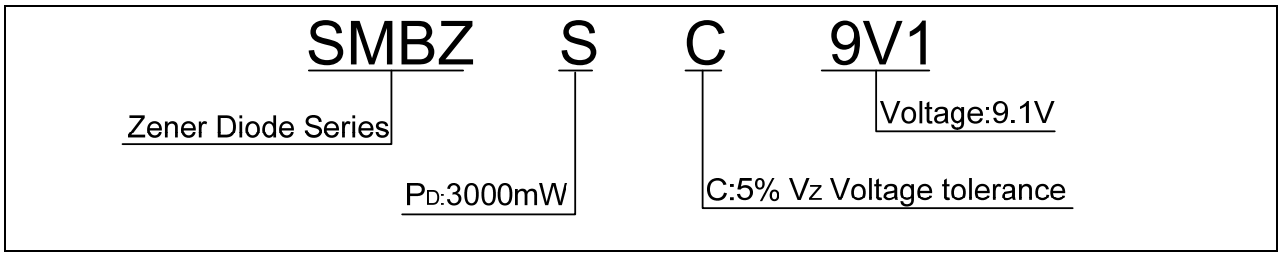
Type number	Zener voltage range at I_{zt}				Maximum zener impedance			Maximum reverse leakage current		Marking code
	Nom (Volts)	Min (Volts)	Max (Volts)	I_{zt} (mA)	Z_{zt} (Ω)	Z_{zk} (Ω)	I_{zk} (mA)	I_R (μA)	V_R (Volts)	
SMBZSC6V8	6.8	6.46	7.14	55.1	2.5	200	1.0	50	4.0	ZS6
SMBZSC7V5	7.5	7.13	7.88	50.0	3.0	400	0.5	25	5.0	ZS7
SMBZSC8V2	8.2	7.79	8.61	45.7	3.5	400	0.5	25	6.0	ZS8
SMBZSC9V1	9.1	8.65	9.56	41.2	4.0	500	0.5	25	7.0	ZS9
SMBZSC10	10	9.5	10.5	37.5	4.5	500	0.25	25	7.6	ZSA
SMBZSC11	11	10.5	11.6	34.1	5.5	550	0.25	5	8.4	ZSB
SMBZSC12	12	11.4	12.6	31.2	6.5	550	0.25	1	9.1	ZSC
SMBZSC13	13	12.4	13.7	28.8	7.0	550	0.25	1	9.9	ZSD
SMBZSC15	15	14.3	15.8	25.0	9.0	600	0.25	1	11.4	ZSE
SMBZSC16	16	15.2	16.8	23.4	10.0	600	0.25	1	12.2	ZSF
SMBZSC18	18	17.1	18.9	20.8	12.0	650	0.25	1	13.7	ZSG
SMBZSC20	20	19.0	21.0	18.7	14.0	650	0.25	1	15.2	ZSH
SMBZSC22	22	20.9	23.1	17.0	17.5	650	0.25	1	16.7	ZSI
SMBZSC24	24	22.8	25.2	15.6	19.0	700	0.25	1	18.2	ZSJ
SMBZSC27	27	25.7	28.4	13.9	23.0	700	0.25	1	20.6	ZSK
SMBZSC30	30	28.5	31.5	12.5	28.0	750	0.25	1	22.5	ZSL
SMBZSC33	33	31.4	34.7	11.4	33.0	800	0.25	1	25.1	ZSM
SMBZSC36	36	34.2	37.8	10.4	38.0	850	0.25	1	27.4	ZSN
SMBZSC39	39	37.1	41.0	9.6	45.0	900	0.25	1	29.7	ZSO
SMBZSC43	43	40.9	45.2	8.7	53.0	950	0.25	1	32.7	ZSP
SMBZSC47	47	44.7	49.4	8.0	67.0	1000	0.25	1	35.8	ZSQ
SMBZSC51	51	48.5	53.6	7.3	70.0	1100	0.25	1	38.8	ZSR
SMBZSC56	56	53.2	58.8	6.7	86.0	1300	0.25	1	42.6	ZSS
SMBZSC62	62	58.9	65.1	6.0	100	1500	0.25	1	47.1	ZST
SMBZSC68	68	64.6	71.4	5.5	120	1700	0.25	1	51.7	ZSU
SMBZSC75	75	71.3	78.8	5.0	140	2000	0.25	1	57.0	ZSV
SMBZSC82	82	77.9	86.1	4.6	160	2500	0.25	1	62.2	ZSW
SMBZSC91	91	86.5	95.6	4.1	200	3000	0.25	1	69.2	ZSX

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

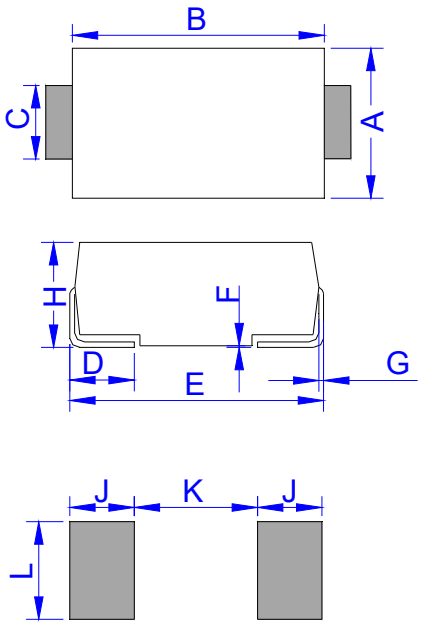
Maximum V_F=1.2V at I_F=200mA

Type number	Zener voltage range at Izt				Maximum zener impedance			Maximum reverse leakage current		Marking code
	Nom (Volts)	Min (Volts)	Max (Volts)	Izt (mA)	Zzt (Ω)	Zzk (Ω)	Izk (mA)	I_R (μA)	V_R (Volts)	
SMBZSC100	100	95	105	3.7	250	3100	0.25	1	76.0	ZSY
SMBZSC110	110	105	116	3.4	300	4000	0.25	1	83.6	ZSZ
SMBZSC120	120	114	126	3.1	380	4500	0.25	1	91.2	ZVA
SMBZSC130	130	124	137	2.9	450	5000	0.25	1	98.8	ZVB
SMBZSC150	150	143	158	2.5	600	6000	0.25	1	114	ZVC
SMBZSC160	160	152	168	2.3	700	6500	0.25	1	122	ZVD
SMBZSC180	180	171	189	2.1	900	7000	0.25	1	137	ZVE
SMBZSC200	200	190	210	1.9	1200	8000	0.25	1	152	ZVF

ORDERING INFORMATION



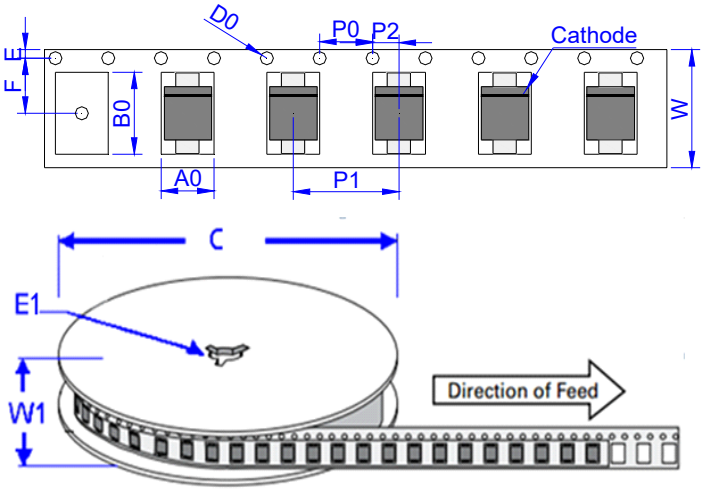
PACKAGE MECHANICAL DATA



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
SMBZSC 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

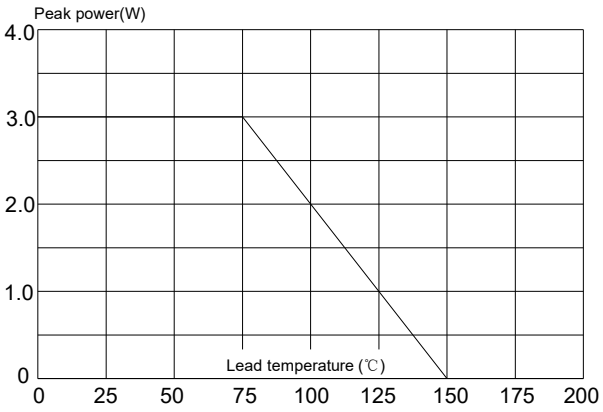


Fig.2 Zener breakdown characteristics

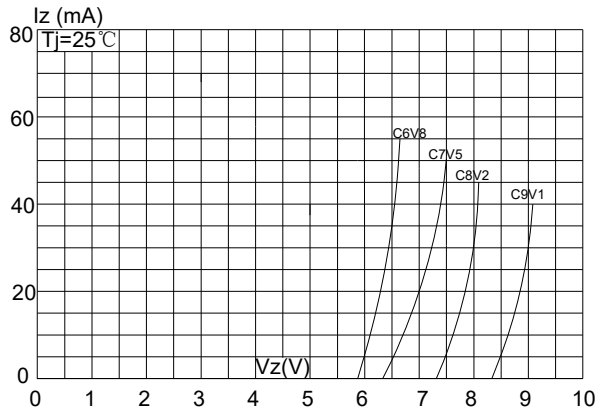


Fig.3 Zener breakdown characteristics

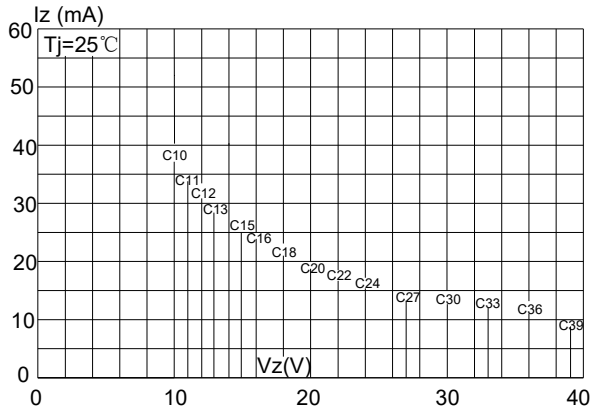


Fig.4 Zener breakdown characteristics

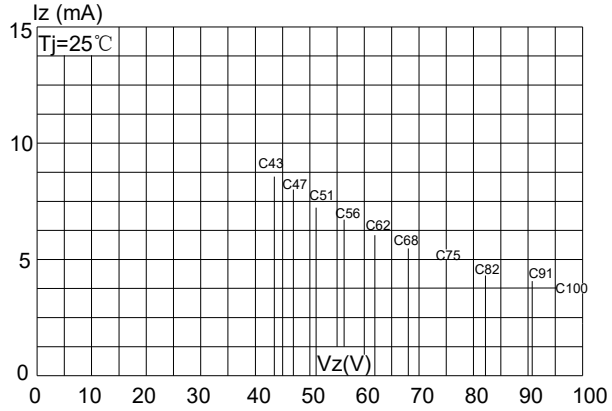
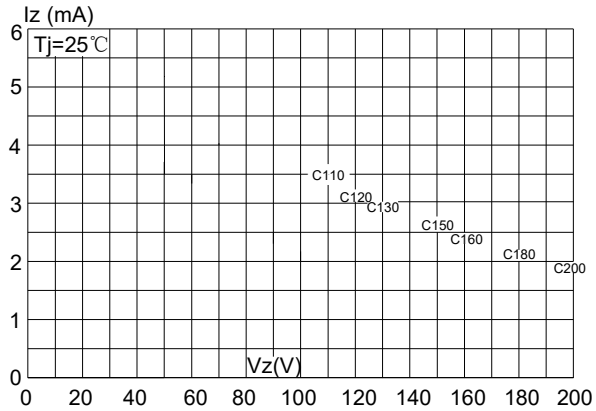


Fig.5 Zener breakdown characteristics



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