

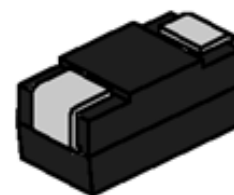


Zener Diodes with Surge Current Specification: SMAZHC Series

Rev.4.4

FEATURE

- ✧ Silicon power zener diodes.
- ✧ Low zener impedance.
- ✧ 1000mW rating on FR-4 or FR-5 board.
- ✧ Voltage range includes breakdown voltages from 6.8V to 100V with $\pm 5\%$ for SMAZHC series.
- ✧ Low profile surface-mount package.
- ✧ Zener and surge current specification
- ✧ For use in stabilizing and clamping circuits with high power rating.



SMA



Symbol

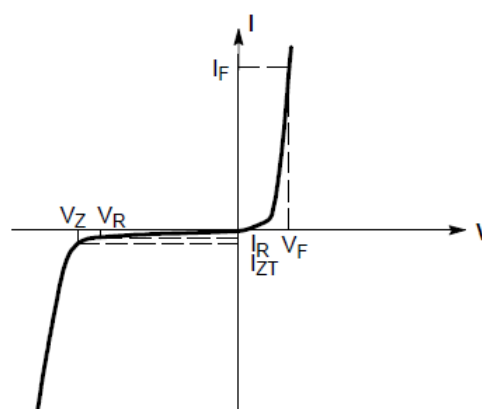
ABSOLUTE MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

Parameter	Symbol	Max Value	Unit
Total power dissipation @ 75°C	P_D	1000	mW
Thermal resistance junction to ambient (Note1)	$R_{\theta JA}$	120	°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 on 10/1000µs waveform	P_{PP}	200	W

Notes1: Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch

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

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



ZHA: Device Marking Code
2009: In ninth week, 2020

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

Maximum $V_F=1.2\text{V}$ at $I_F=200\text{mA}$

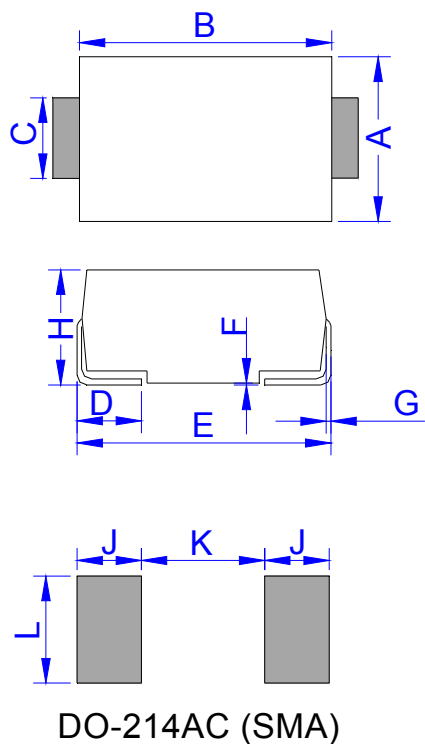
Type number	Zener voltage range at I_{zt}				Maximum zener impedance			Maximum reverse leakage current		Junction capacitance	Marking code
	Nom (V)	Min (V)	Max (V)	I_{zt} (mA)	Z_{zt} (Ω)	Z_{zk} (Ω)	I_{zk} (mA)	I_R (μA)	V_R (V)	Typ (pF)	
SMAZHC6V8	6.8	6.46	7.14	37	3.5	700	1.0	10	4	1700	ZHA
SMAZHC7V5	7.5	7.13	7.88	34	4.0	700	0.5	10	5	1300	ZHB
SMAZHC8V2	8.2	7.79	8.61	31	4.5	700	0.5	10	6	1000	ZHC
SMAZHC9V1	9.1	8.65	9.56	28	5.0	700	0.5	10	7	700	ZHD
SMAZHC10	10	9.5	10.5	25	7.0	700	0.25	10	7.6	690	ZHE
SMAZHC11	11	10.5	11.6	23	8.0	700	0.25	5	8.4	680	ZHF
SMAZHC12	12	11.4	12.6	21	9.0	700	0.25	1	9.1	660	ZHG
SMAZHC13	13	12.4	13.7	19	10	700	0.25	1	9.9	620	ZHH
SMAZHC15	15	14.3	15.8	17	14	700	0.25	1	11.4	560	ZHI
SMAZHC16	16	15.2	16.8	15.5	16	700	0.25	1	12.2	520	ZHJ
SMAZHC18	18	17.1	18.9	14	20	750	0.25	1	13.7	480	ZHK
SMAZHC20	20	19	21	12.5	22	750	0.25	1	15.2	440	ZHL
SMAZHC22	22	20.9	23.1	11.5	23	750	0.25	1	16.7	420	ZHM
SMAZHC24	24	22.8	25.2	10.5	25	750	0.25	1	18.2	400	ZHN
SMAZHC27	27	25.7	28.4	9.5	35	750	0.25	1	20.6	280	ZHO
SMAZHC30	30	28.5	31.5	8.5	40	1000	0.25	1	22.8	260	ZHP
SMAZHC33	33	31.4	34.7	7.5	45	1000	0.25	1	25.1	245	ZHQ
SMAZHC36	36	34.2	37.8	7.0	50	1000	0.25	1	27.4	230	ZHR
SMAZHC39	39	37.1	41.0	6.5	60	1000	0.25	1	29.7	220	ZHS
SMAZHC43	43	40.9	45.2	6.0	70	1500	0.25	1	32.7	200	ZHT
SMAZHC47	47	44.7	49.4	5.5	80	1500	0.25	1	35.8	190	ZHU
SMAZHC51	51	48.5	53.6	5.0	95	1500	0.25	1	38.8	180	ZHV
SMAZHC56	56	53.2	58.8	4.5	110	2000	0.25	1	42.6	170	ZHW
SMAZHC62	62	58.9	65.1	4.0	125	2000	0.25	1	47.1	160	ZHX
SMAZHC68	68	64.6	71.4	3.7	150	2000	0.25	1	51.7	150	ZHY
SMAZHC75	75	71.3	78.8	3.3	175	2000	0.25	1	56.0	130	ZHZ

SMAZHC ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted, continued)Maximum $V_F=1.2\text{V}$ at $I_F=200\text{mA}$

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)	
SMAZHC82	82	77.9	86.1	3.0	200	3000	0.25	1	62.2	120	ZIA
SMAZHC91	91	86.5	95.6	2.8	250	3000	0.25	1	69.2	110	ZIB
SMAZHC100	100	95	105	2.5	350	3000	0.25	1	76.0	100	ZIC

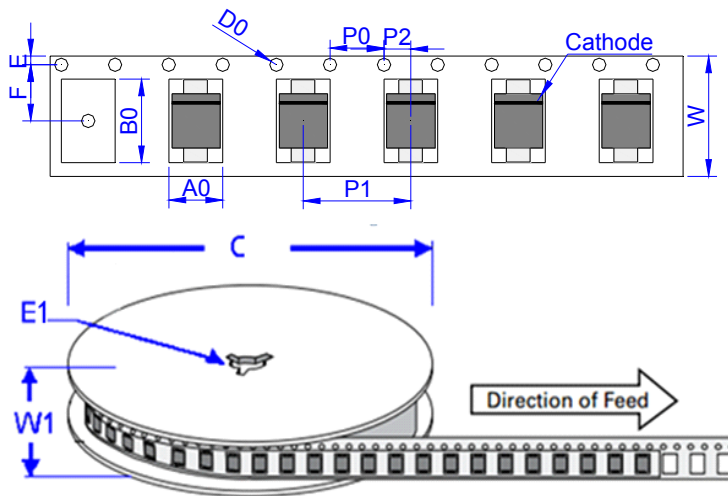
Notes: Junction capacitance is measured in $V_R=0\text{V}$, $f=1\text{MHz}$.**ORDERING INFORMATION**

SMAZ H C 9V1			
Zener Diode Series		Voltage:9.1V	
PD:1000mW		C:5% V_Z Voltage tolerance	

PACKAGE MECHANICAL DATA

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.60	3.00	0.102	0.118
B	4.15	4.65	0.163	0.183
C	1.25	1.65	0.049	0.065
D	0.95	1.52	0.037	0.060
E	4.90	5.30	0.193	0.209
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.00	2.44	0.079	0.096
J	2.00		0.079	
K		2.30		0.091
L	1.80		0.071	

TAPE AND REEL SPECIFICATION-SMA



Ref.	Dimensions	
	Millimeters	Inches
A0	2.79 ± 0.3	0.110 ± 0.012
B0	5.33 ± 0.3	0.210 ± 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	4.00 ± 0.2	0.157 ± 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
SMAZHC Series	0.066	5,000	80,000	13 inch reel pack

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

Fig.1 Power dissipation vs lead temperature

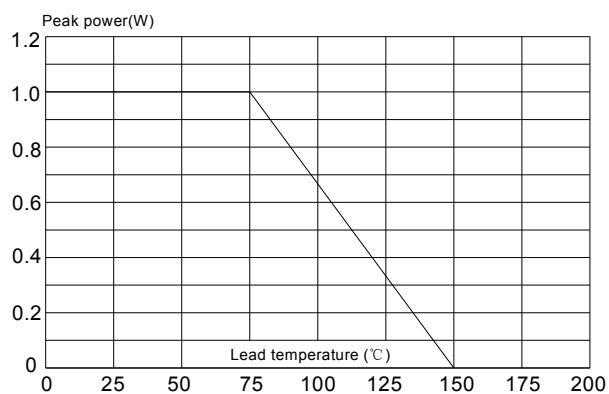


Fig.2 Zener breakdown characteristics

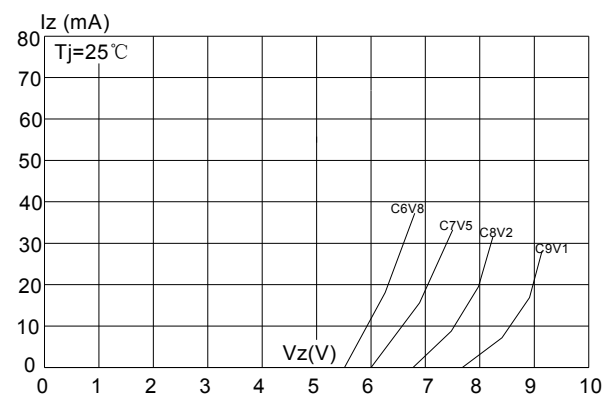


Fig.3 Zener breakdown characteristics

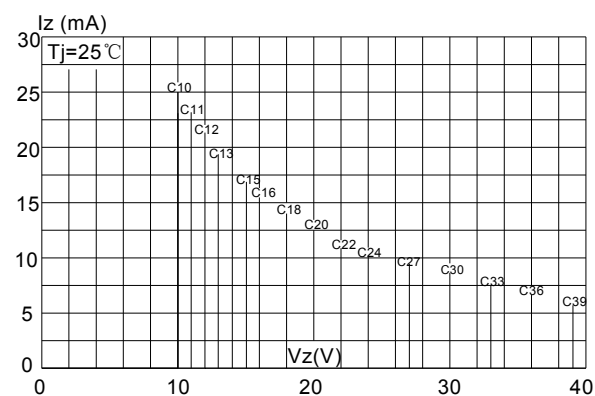


Fig.4 Zener breakdown characteristics

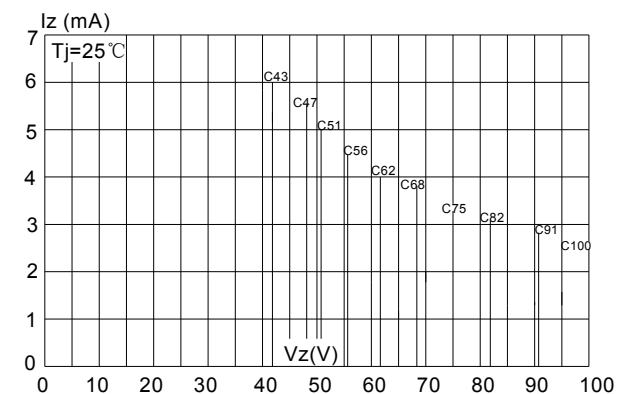
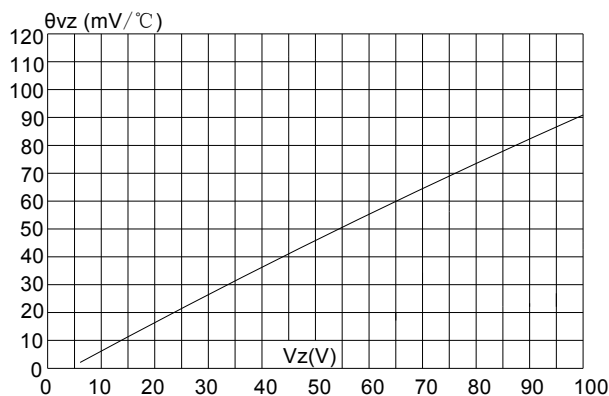


Fig.5 Temperature coefficient vs Zener voltage



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