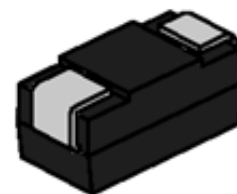




## Zener Diodes with Surge Current Specification: SMAZPC Series Rev.6.4

### FEATURE

- ✧ Silicon power zener diodes.
- ✧ Low zener impedance.
- ✧ 2500mW rating on FR-4 or FR-5 board.
- ✧ Voltage range includes breakdown voltages from 6.8V to 200V with  $\pm 5\%$  for SMAZPC series.
- ✧ Low profile surface-mount package.
- ✧ Zener and surge current specification.
- ✧ For use in stabilizing and clamping circuits with high power rating.



SMA



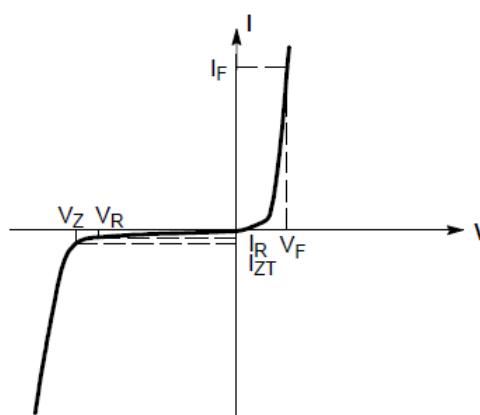
### ABSOLUTE MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

Parameter	Symbol	Max Value	Unit
Total power dissipation @75°C	$P_D$	2500	mW
Thermal resistance junction to ambient (Note1)	$R_{\theta JA}$	200	°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	$P_{PP}$	400	W

Note1: Mounted on minimum recommended pad layout

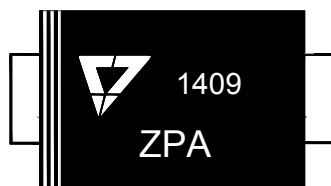
### ELECTRICAL CHARACTERISTICS

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



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

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

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

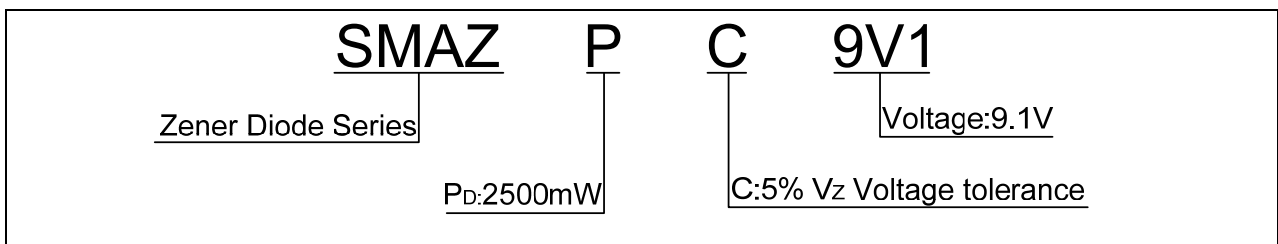
Type number	Zener voltage range at $I_{zt}$				Maximum zener impedance			Maximum reverse leakage current		Marking code
	Nom (Volts)	Min (Volts)	Max (Volts)	$I_{zt}$ (mA)	$Z_{zt}$ ( $\Omega$ )	$Z_{zk}$ ( $\Omega$ )	$I_{zk}$ (mA)	$I_R$ ( $\mu\text{A}$ )	$V_R$ (Volts)	
SMAZPC6V8	6.8	6.46	7.14	92	2.5	200	1.0	20	5.2	ZPA
SMAZPC7V5	7.5	7.13	7.88	83	3.0	400	0.5	10	6.0	ZPB
SMAZPC8V2	8.2	7.79	8.61	76	3.5	400	0.5	10	6.5	ZPC
SMAZPC9V1	9.1	8.65	9.56	68	4.0	500	0.5	10	7.0	ZPD
SMAZPC10	10	9.5	10.5	62.5	4.5	500	0.25	10	8.0	ZPE
SMAZPC11	11	10.5	11.6	56.8	5.5	550	0.25	5	8.4	ZPF
SMAZPC12	12	11.4	12.6	52	6.5	550	0.25	1	9.1	ZPG
SMAZPC13	13	12.4	13.7	48	7.0	550	0.25	1	9.9	ZPH
SMAZPC15	15	14.3	15.8	41.6	9.0	600	0.25	1	11.4	ZPI
SMAZPC16	16	15.2	16.8	39	10	600	0.25	1	12.2	ZPJ
SMAZPC18	18	17.1	18.9	34.7	12	650	0.25	1	13.7	ZPK
SMAZPC20	20	19	21	31.2	14	650	0.25	1	15.2	ZPL
SMAZPC22	22	20.9	23.1	28.4	17.5	650	0.25	1	16.7	ZPM
SMAZPC24	24	22.8	25.2	26	19	700	0.25	1	18.2	ZPN
SMAZPC27	27	25.7	28.4	23.1	23	700	0.25	1	20.5	ZPO
SMAZPC30	30	28.5	31.5	20.8	26	750	0.25	1	22.8	ZPP
SMAZPC33	33	31.4	34.7	19	33	800	0.25	1	25.1	ZPQ
SMAZPC36	36	34.2	37.8	17.4	38	850	0.25	1	27.4	ZPR
SMAZPC39	39	37.1	41.0	16	45	900	0.25	1	29.7	ZPS
SMAZPC43	43	40.9	45.2	14.5	53	950	0.25	1	32.7	ZPT
SMAZPC47	47	44.7	49.4	13.3	67	1000	0.25	1	35.8	ZPU
SMAZPC51	51	48.5	53.6	12.2	70	1100	0.25	1	38.8	ZPV
SMAZPC56	56	53.2	58.8	11.4	86	1300	0.25	1	42.6	ZPW
SMAZPC62	62	58.9	65.1	10.1	100	1500	0.25	1	47.1	ZPX
SMAZPC68	68	64.6	71.4	9.2	120	1700	0.25	1	51.7	ZPY
SMAZPC75	75	71.3	78.8	8.3	140	2000	0.25	1	57.0	ZPZ
SMAZPC82	82	77.9	86.1	7.6	160	2200	0.25	1	62.3	ZQA
SMAZPC91	91	84.5	95.6	6.9	180	2400	0.25	1	69.2	ZQB

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

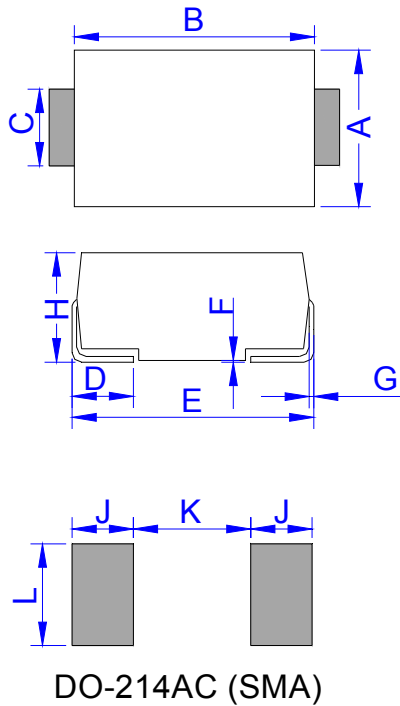
Maximum  $V_F=1.2V$  at  $I_F=200mA$

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)	$Z_{zt}$ ( $\Omega$ )	$Z_{zk}$ ( $\Omega$ )	$I_{zk}$ (mA)	$I_R$ ( $\mu A$ )	$V_R$ (Volts)	
SMAZPC100	100	95	105	6.3	200	2600	0.25	1	76.0	ZQC
SMAZPC110	110	105	116	5.7	300	4000	0.25	1	83.6	ZQD
SMAZPC120	120	114	126	5.2	380	4500	0.25	1	91.2	ZQE
SMAZPC130	130	124	137	4.8	450	5000	0.25	1	98.8	ZQF
SMAZPC150	150	143	158	4.2	600	6000	0.25	1	114	ZQG
SMAZPC160	160	152	168	3.9	700	6500	0.25	1	122	ZQH
SMAZPC180	180	171	189	3.5	900	7000	0.25	1	137	ZQI
SMAZPC200	200	190	210	3.1	1200	8000	0.25	1	152	ZQJ

**ORDERING INFORMATION**

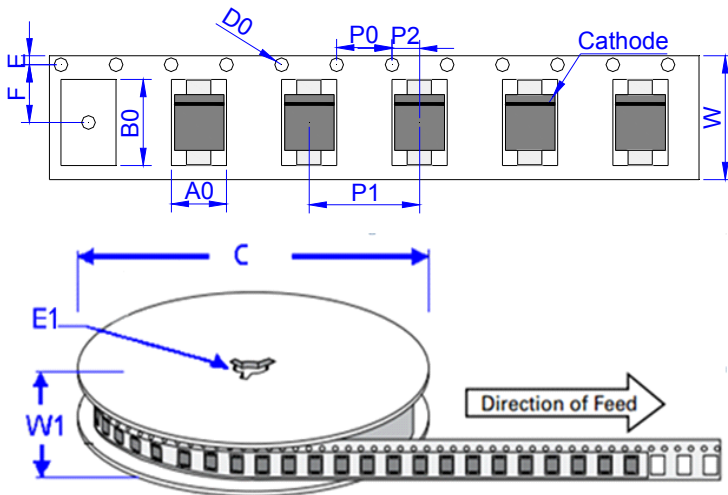


PACKAGE MECHANICAL DATA



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
SMAZPC Series	0.066	7,500	120,000	13 inch reel pack

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

Fig.1 Power dissipation vs lead temperature

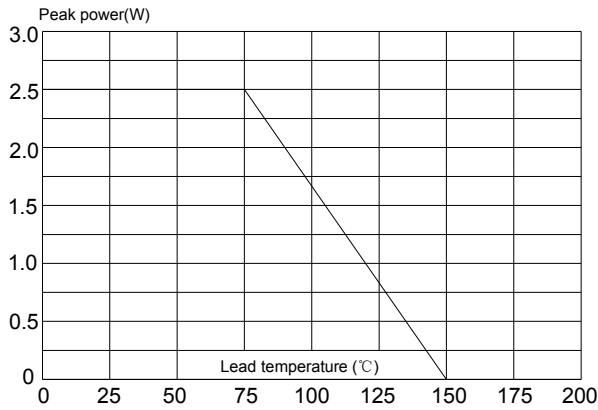


Fig.2 Zener breakdown characteristics

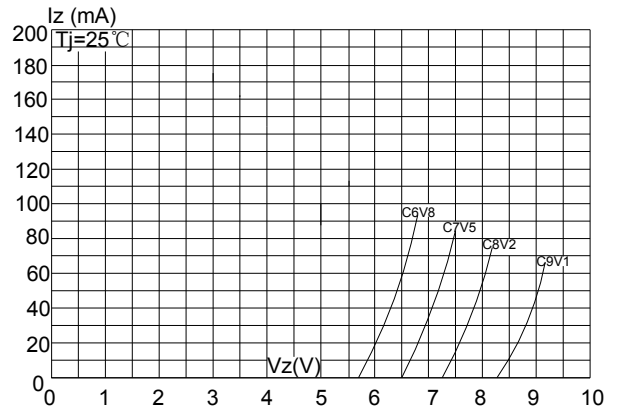


Fig.3 Zener breakdown characteristics

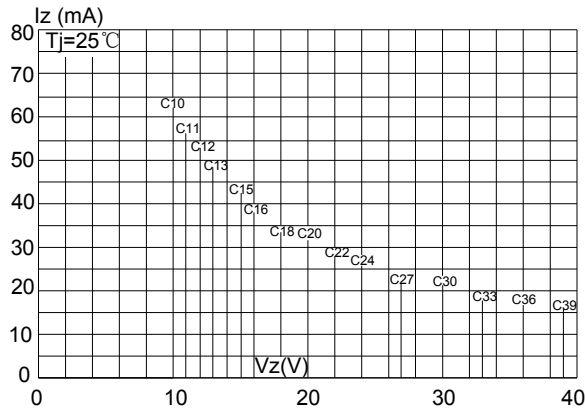


Fig.4 Zener breakdown characteristics

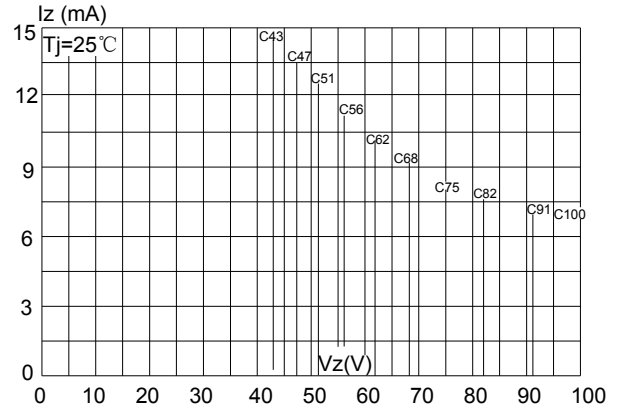
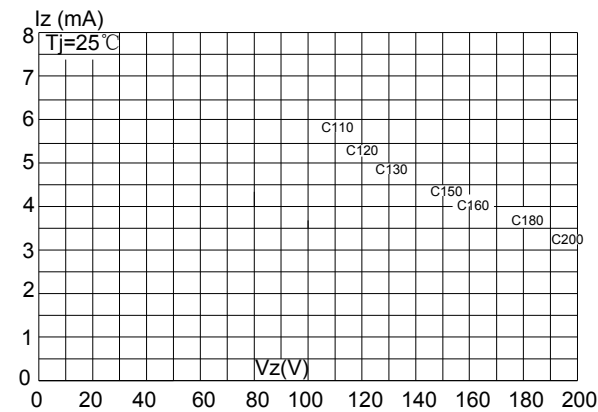


Fig.5 Zener breakdown characteristics




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