

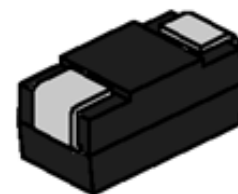


## Zener Diodes with Surge Current Specification: SMAZPCxxAU

Rev.1.2

### 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 SMAZPCxxAU series.
- ✧ Low profile surface-mount package.
- ✧ Zener and surge current specification.
- ✧ For use in stabilizing and clamping circuits with high power rating.
- ✧ AEC-Q101 qualified.



SMA



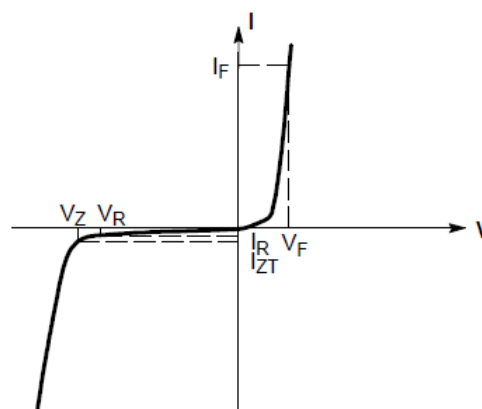
### ABSOLUTE MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

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

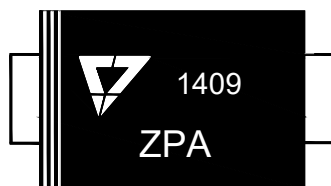
Note1: Mounted on minimum recommended pad layout

### 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

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

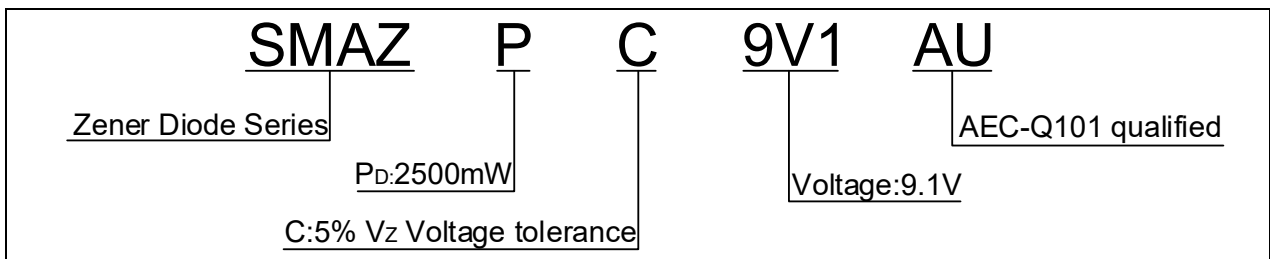
Type number	Zener voltage range at $I_{zt}$				Maximum zener impedance			Maximum reverse leakage current		Marking code
	Nom (Volts)	Min (Volts)	Max (Volts)	$I_{zt}$ (mA)	$Z_{zt}$ ( $\Omega$ )	$Z_{zk}$ ( $\Omega$ )	$I_{zk}$ (mA)	$I_R$ ( $\mu\text{A}$ )	$V_R$ (Volts)	
SMAZPC6V8AU	6.8	6.46	7.14	92	2.5	200	1.0	20	5.2	ZPA
SMAZPC7V5AU	7.5	7.13	7.88	83	3.0	400	0.5	10	6.0	ZPB
SMAZPC8V2AU	8.2	7.79	8.61	76	3.5	400	0.5	10	6.5	ZPC
SMAZPC9V1AU	9.1	8.65	9.56	68	4.0	500	0.5	10	7.0	ZPD
SMAZPC10AU	10	9.5	10.5	62.5	4.5	500	0.25	10	8.0	ZPE
SMAZPC11AU	11	10.5	11.6	56.8	5.5	550	0.25	5	8.4	ZPF
SMAZPC12AU	12	11.4	12.6	52	6.5	550	0.25	1	9.1	ZPG
SMAZPC13AU	13	12.4	13.7	48	7.0	550	0.25	1	9.9	ZPH
SMAZPC15AU	15	14.3	15.8	41.6	9.0	600	0.25	1	11.4	ZPI
SMAZPC16AU	16	15.2	16.8	39	10	600	0.25	1	12.2	ZPJ
SMAZPC18AU	18	17.1	18.9	34.7	12	650	0.25	1	13.7	ZPK
SMAZPC20AU	20	19	21	31.2	14	650	0.25	1	15.2	ZPL
SMAZPC22AU	22	20.9	23.1	28.4	17.5	650	0.25	1	16.7	ZPM
SMAZPC24AU	24	22.8	25.2	26	19	700	0.25	1	18.2	ZPN
SMAZPC27AU	27	25.7	28.4	23.1	23	700	0.25	1	20.5	ZPO
SMAZPC30AU	30	28.5	31.5	20.8	26	750	0.25	1	22.8	ZPP
SMAZPC33AU	33	31.4	34.7	19	33	800	0.25	1	25.1	ZPQ
SMAZPC36AU	36	34.2	37.8	17.4	38	850	0.25	1	27.4	ZPR
SMAZPC39AU	39	37.1	41.0	16	45	900	0.25	1	29.7	ZPS
SMAZPC43AU	43	40.9	45.2	14.5	53	950	0.25	1	32.7	ZPT
SMAZPC47AU	47	44.7	49.4	13.3	67	1000	0.25	1	35.8	ZPU
SMAZPC51AU	51	48.5	53.6	12.2	70	1100	0.25	1	38.8	ZPV
SMAZPC56AU	56	53.2	58.8	11.4	86	1300	0.25	1	42.6	ZPW
SMAZPC62AU	62	58.9	65.1	10.1	100	1500	0.25	1	47.1	ZPX
SMAZPC68AU	68	64.6	71.4	9.2	120	1700	0.25	1	51.7	ZPY
SMAZPC75AU	75	71.3	78.8	8.3	140	2000	0.25	1	57.0	ZPZ
SMAZPC82AU	82	77.9	86.1	7.6	160	2200	0.25	1	62.3	ZQA
SMAZPC91AU	91	84.5	95.6	6.9	180	2400	0.25	1	69.2	ZQB

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

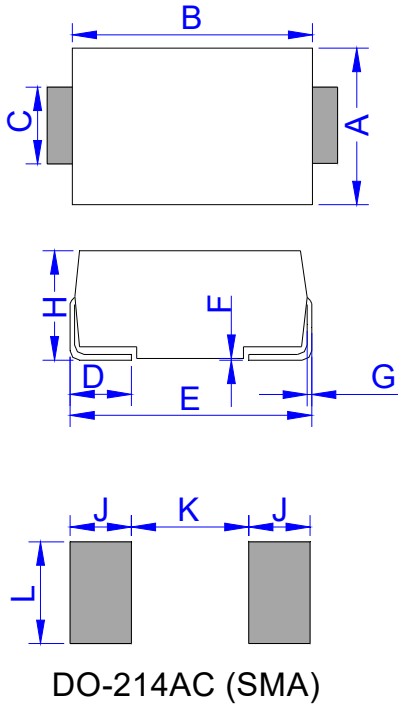
Maximum  $V_F=1.2\text{V}$  at  $I_F=200\text{mA}$

Type number	Zener voltage range at $I_{zt}$				Maximum zener impedance			Maximum reverse leakage current		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)	
SMAZPC100AU	100	95	105	6.3	200	2600	0.25	1	76.0	ZQC
SMAZPC110AU	110	105	116	5.7	300	4000	0.25	1	83.6	ZQD
SMAZPC120AU	120	114	126	5.2	380	4500	0.25	1	91.2	ZQE
SMAZPC130AU	130	124	137	4.8	450	5000	0.25	1	98.8	ZQF
SMAZPC150AU	150	143	158	4.2	600	6000	0.25	1	114	ZQG
SMAZPC160AU	160	152	168	3.9	700	6500	0.25	1	122	ZQH
SMAZPC180AU	180	171	189	3.5	900	7000	0.25	1	137	ZQI
SMAZPC200AU	200	190	210	3.1	1200	8000	0.25	1	152	ZQJ

**ORDERING INFORMATION**

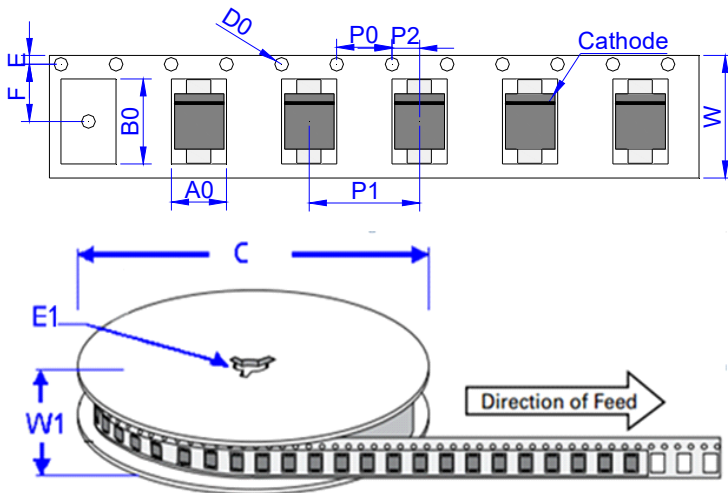


PACKAGE MECHANICAL DATA



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
SMAZPCxxAU	0.066	7,500	120,000	13 inch reel pack

RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub>=25°C, unless otherwise noted)

Fig.1 Power dissipation vs lead temperature

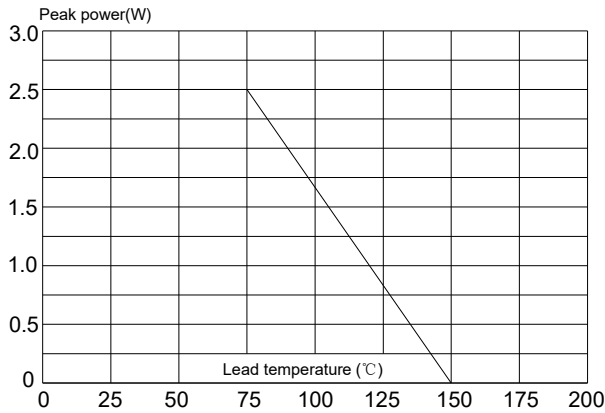


Fig.2 Zener breakdown characteristics

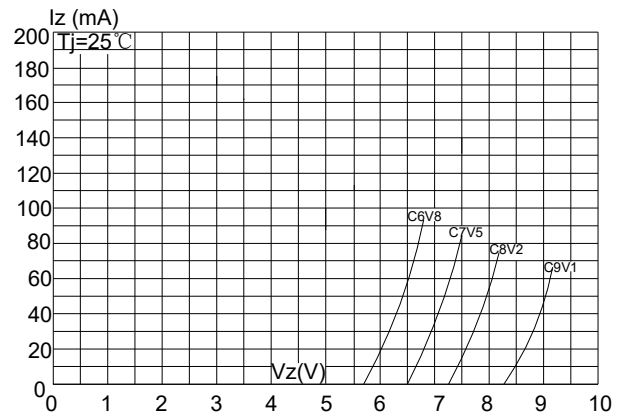


Fig.3 Zener breakdown characteristics

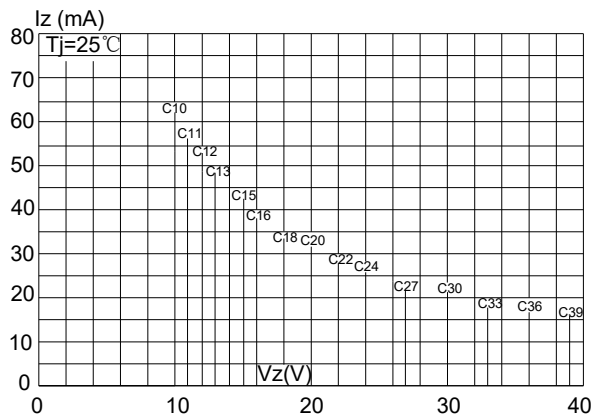


Fig.4 Zener breakdown characteristics

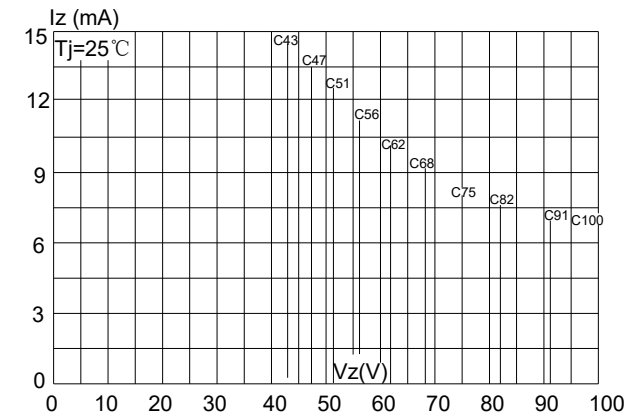
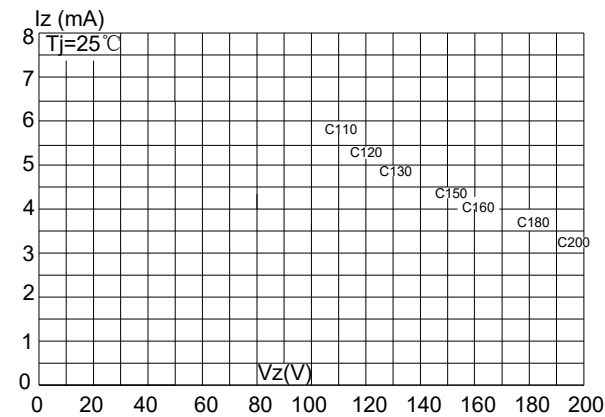


Fig.5 Zener breakdown characteristics




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