

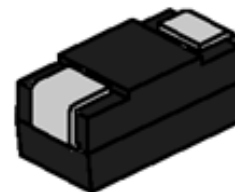


## Zener Diodes with Surge Current Specification: SMAZKC Series

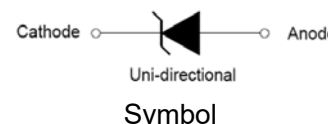
Rev.5.7

### FEATURE

- ✧ Silicon power zener diodes.
- ✧ Low zener impedance.
- ✧ 1500mW rating on FR-4 or FR-5 board.
- ✧ Voltage range includes breakdown voltages from 6.8V to 200V with  $\pm 5\%$  for SMAZKC 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°C.



SMA



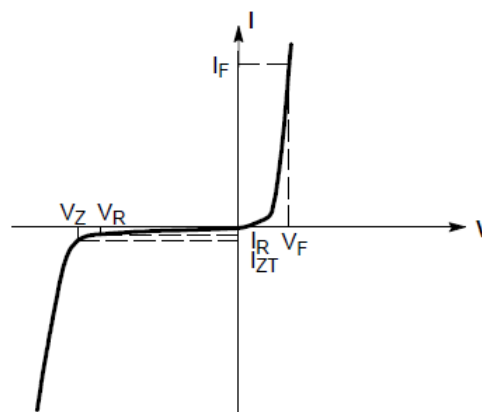
### ABSOLUTE MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

Parameter	Symbol	Max Value	Unit
Total power dissipation @75°C	$P_D$	1500	mW
Thermal resistance junction to ambient (Note1)	$R_{\theta JA}$	250	°C/W
Thermal resistance junction to lead (Note1)	$R_{\theta JL}$	50	°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	$P_{PP}$	300	W

Note1: Mounted on minimum recommended pad layout

### 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



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

SMAZKC 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)	$Z_{zt}$ ( $\Omega$ )	$Z_{zk}$ ( $\Omega$ )	$I_{zk}$ (mA)	$I_R$ ( $\mu\text{A}$ )	$V_R$ (V)	Typ (pF)	
SMAZKC6V8	6.8	6.46	7.14	55.1	2.5	400	1.0	20	5.2	2600	ZKA
SMAZKC7V5	7.5	7.13	7.88	50.0	2.5	400	1.0	10	6.0	2100	ZKB
SMAZKC8V2	8.2	7.79	8.61	45.7	5.0	700	0.5	10	6.5	1800	ZKC
SMAZKC9V1	9.1	8.65	9.56	41.2	5.0	700	0.5	10	7.0	1700	ZKD
SMAZKC10	10	9.5	10.5	37.5	5.0	700	0.25	10	8.0	1300	ZKE
SMAZKC11	11	10.5	11.6	34.1	5.5	550	0.25	5	8.4	1100	ZKF
SMAZKC12	12	11.4	12.6	31.2	6.5	550	0.25	1	9.1	1000	ZKG
SMAZKC13	13	12.4	13.7	28.8	7.0	550	0.25	1	9.9	900	ZKH
SMAZKC15	15	14.3	15.8	25.0	9.0	600	0.25	1	11.4	800	ZKI
SMAZKC16	16	15.2	16.8	23.4	10	600	0.25	1	12.2	700	ZKJ
SMAZKC18	18	17.1	18.9	20.8	12	650	0.25	1	13.7	660	ZKK
SMAZKC20	20	19	21	18.7	14	650	0.25	1	15.2	600	ZKL
SMAZKC22	22	20.9	23.1	17.0	17.5	650	0.25	1	16.7	560	ZKM
SMAZKC24	24	22.8	25.2	15.6	19	700	0.25	1	18.2	520	ZKN
SMAZKC27	27	25.7	28.4	13.9	23	700	0.25	1	20.5	480	ZKO
SMAZKC30	30	28.5	31.5	12.5	28	750	0.25	1	22.8	440	ZKP
SMAZKC33	33	31.4	34.7	11.4	33	800	0.25	1	25.1	420	ZKQ
SMAZKC36	36	34.2	37.8	10.4	38	850	0.25	1	27.4	410	ZKR
SMAZKC39	39	37.1	41.0	9.6	45	900	0.25	1	29.7	360	ZKS
SMAZKC43	43	40.9	45.2	8.7	53	950	0.25	1	32.7	320	ZKT
SMAZKC47	47	44.7	49.4	8.0	67	1000	0.25	1	35.8	310	ZKU
SMAZKC51	51	48.5	53.6	7.3	70	1100	0.25	1	38.8	300	ZKV
SMAZKC56	56	53.2	58.8	6.7	86	1300	0.25	1	42.6	290	ZKW
SMAZKC62	62	58.9	65.1	6.0	100	1500	0.25	1	47.1	280	ZKX
SMAZKC68	68	64.6	71.4	5.5	120	1700	0.25	1	51.7	250	ZKY
SMAZKC75	75	71.3	78.8	5.0	140	2000	0.25	1	57.0	230	ZKZ
SMAZKC82	82	77.9	86.1	4.6	160	2500	0.25	1	62.3	225	ZLA

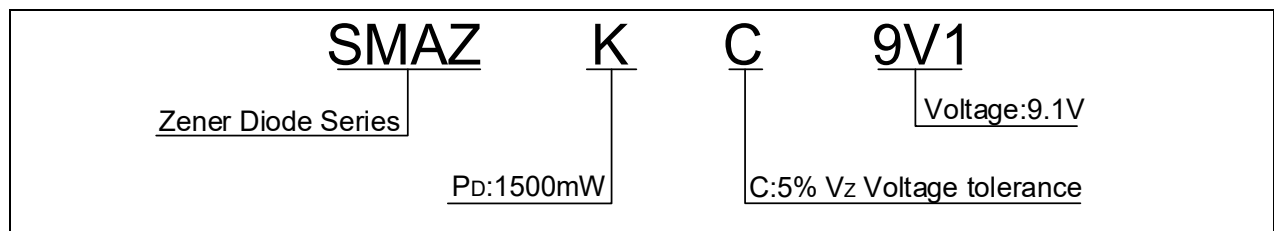
**SMAZKC ELECTRICAL CHARACTERISTICS** ( $T_A=25^\circ\text{C}$  unless otherwise noted, continued)

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

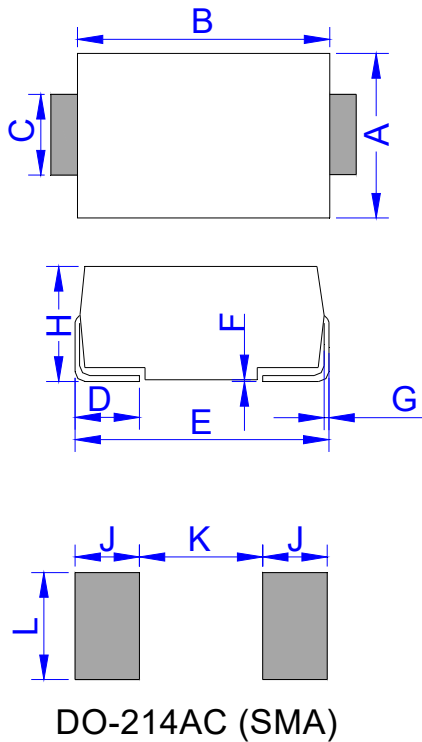
Type number	Zener voltage range at $I_{zt}$				Maximum zener impedance			Maximum reverse leakage current		Junction capacitance	Marking code
	Nom (V)	Min (V)	Max (V)	$I_{zt}$ (mA)	$Z_{zt}$ ( $\Omega$ )	$Z_{zk}$ ( $\Omega$ )	$I_{zk}$ (mA)	$I_R$ ( $\mu\text{A}$ )	$V_R$ (V)	Typ (pF)	
SMAZKC91	91	86.5	95.6	4.1	200	3000	0.25	1	69.2	220	ZLB
SMAZKC100	100	95.0	105	3.8	250	3100	0.25	1	76.0	215	ZLC
SMAZKC120	120	114	126	3.1	380	4500	0.25	1	91.2	190	ZLD
SMAZKC130	130	124	137	2.9	450	5000	0.25	1	98.8	160	ZLE
SMAZKC150	150	143	158	2.5	600	6000	0.25	1	114	155	ZLF
SMAZKC160	160	152	168	2.3	700	6500	0.25	1	122	145	ZLG
SMAZKC180	180	171	189	2.1	900	7000	0.25	1	137	135	ZLH
SMAZKC200	200	190	210	1.9	1200	8000	0.25	1	152	125	ZLI

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

**ORDERING INFORMATION**

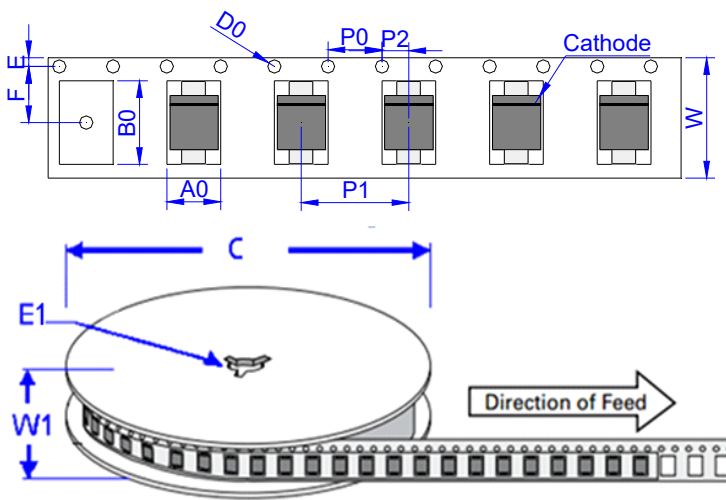


PACKAGE MECHANICAL DATA



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
SMAZKC Series	0.07	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

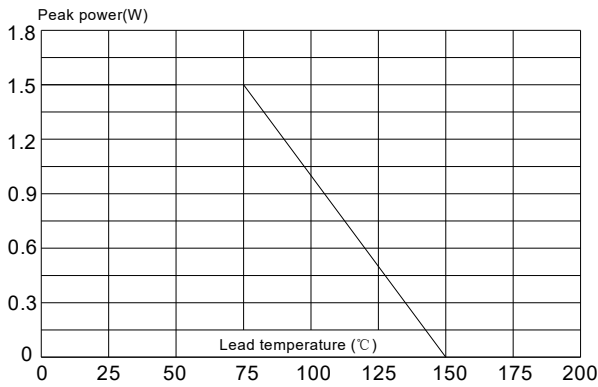


Fig.2 Zener breakdown characteristics

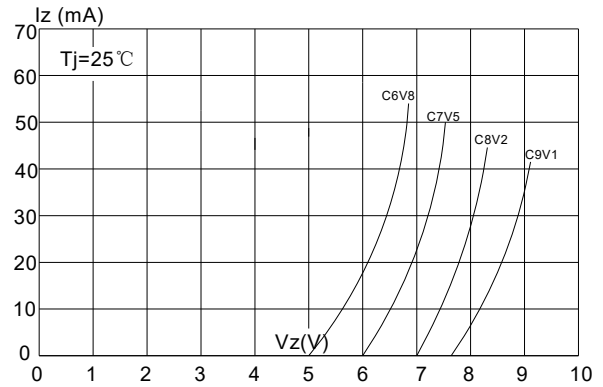


Fig.3 Zener breakdown characteristics

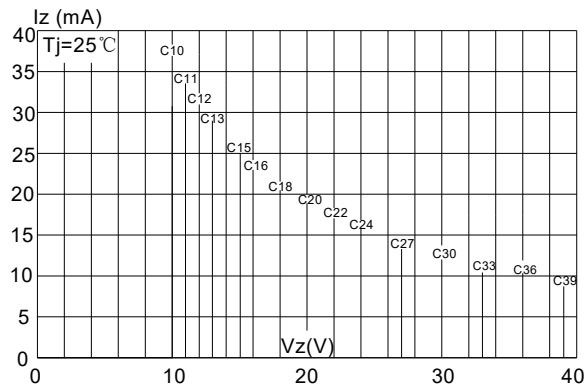


Fig.4 Zener breakdown characteristics

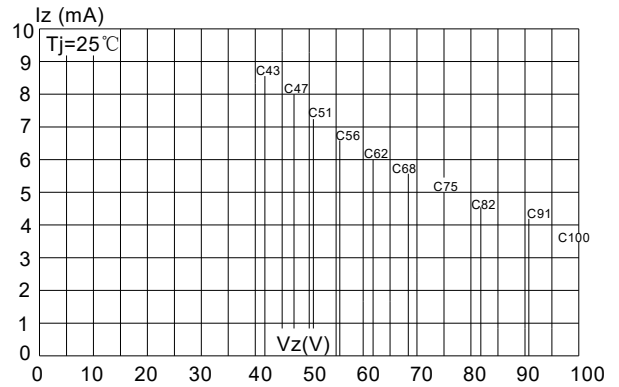


Fig.5 Zener breakdown characteristics

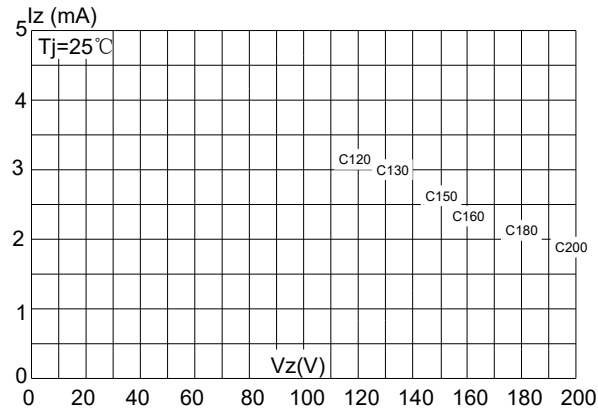
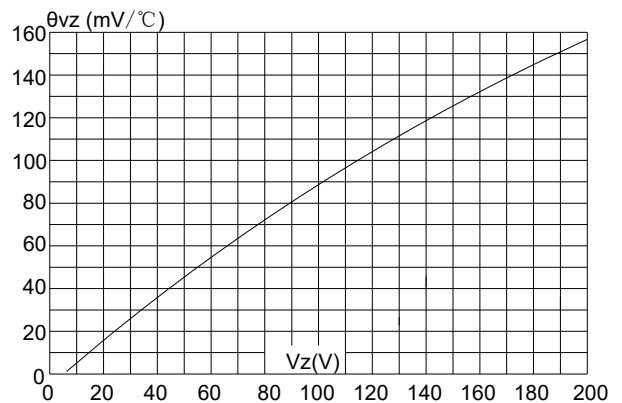


Fig.6 Temperature coefficient vs Zener voltage




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