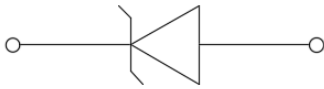
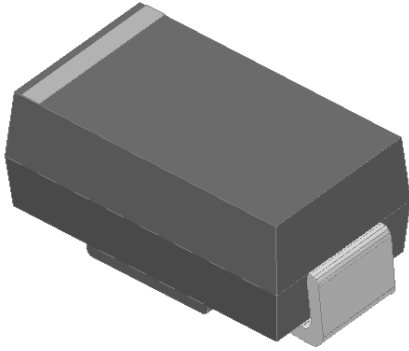


## Surface Mount Zener Diodes



### Features

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Part no. with suffix "Q" means AEC-Q101 qualified

### Mechanical Data

- **Package:** DO-214AC (SMA)  
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** Cathode line denotes the cathode end

### ■Maximum Ratings (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	MAX
DC power dissipation at T <sub>L</sub> = 75 °C	P <sub>D</sub>	W	2.0
Maximum instantaneous forward voltage@ I <sub>F</sub> =200mA	V <sub>F</sub>	V	1.5
Maximum junction temperature	T <sub>j</sub>	°C	-55 to +150
Storage temperature range	T <sub>stg</sub>	°C	-55 to +150

### ■Thermal Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Conditions	VALUE
Thermal resistance(Typical)	R <sub>θJ-L</sub> <sup>(1)</sup>	°C/W	junction to lead	30
	R <sub>θJ-A</sub> <sup>(1)</sup>	°C/W	junction to ambient	120

Note  
Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.4" x 0.4" (10 mm x 10 mm) copper pad areas



## SMA2Z6.8AQ THRU SMA2Z220AQ

### ■Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

Part Number	Nominal Zener voltage			Test current	Maximum dynamic impedance resistance			Maximum reverse leakage current		Maximum DC Zener Current
	Min VZ <sup>(1)</sup> at IZT	Typ. VZ <sup>(1)</sup> at IZT	Max VZ <sup>(1)</sup> at IZT		IZZT at IZT	ZZK at IZK	IZK	IR	Test voltage VR	
	V	V	V	mA	Ω	Ω	mA	μA	V	mA
SMA2Z6.8AQ	6.46	6.8	7.14	73.5	2.0	700	1.00	10.0	4.0	266.0
SMA2Z7.5AQ	7.13	7.5	7.88	66.5	2.0	700	0.50	10.0	5.0	242.0
SMA2Z8.2AQ	7.79	8.2	8.61	61.0	2.3	700	0.50	10.0	6.0	220.0
SMA2Z9.1AQ	8.65	9.1	9.56	55.0	2.5	700	0.50	10.0	7.0	200.0
SMA2Z10AQ	9.50	10.0	10.50	50.0	3.5	700	0.25	10.0	7.6	182.0
SMA2Z11AQ	10.45	11.0	11.55	45.5	4.0	700	0.25	1.0	8.4	166.0
SMA2Z12AQ	11.40	12.0	12.60	41.5	4.5	700	0.25	1.0	9.1	152.0
SMA2Z13AQ	12.35	13.0	13.65	38.5	5.0	700	0.25	0.5	9.9	138.0
SMA2Z14AQ	13.30	14.0	14.70	35.7	5.5	700	0.25	0.5	10.6	130.0
SMA2Z15AQ	14.25	15.0	15.75	33.4	7.0	700	0.25	0.5	11.4	122.0
SMA2Z16AQ	15.20	16.0	16.80	31.2	8.0	700	0.25	0.5	12.2	114.0
SMA2Z17AQ	16.15	17.0	17.85	29.4	9.0	750	0.25	0.5	13.0	107.0
SMA2Z18AQ	17.10	18.0	18.90	27.8	10.0	750	0.25	0.5	13.7	100.0
SMA2Z19AQ	18.05	19.0	19.95	26.3	11.0	750	0.25	0.5	14.4	95.0
SMA2Z20AQ	19.00	20.0	21.00	25.0	11.0	750	0.25	0.5	15.2	90.0
SMA2Z22AQ	20.90	22.0	23.10	22.8	12.0	750	0.25	0.5	16.7	82.0
SMA2Z24AQ	22.80	24.0	25.20	20.8	13.0	750	0.25	0.5	18.2	76.0
SMA2Z27AQ	25.65	27.0	28.35	18.5	18.0	750	0.25	0.5	20.6	68.0
SMA2Z30AQ	28.50	30.0	31.50	16.6	20.0	1000	0.25	0.5	22.5	60.0
SMA2Z33AQ	31.35	33.0	34.65	15.1	23.0	1000	0.25	0.5	25.1	55.0
SMA2Z36AQ	34.20	36.0	37.80	13.9	25.0	1000	0.25	0.5	27.4	50.0
SMA2Z39AQ	37.05	39.0	40.95	12.8	30.0	1000	0.25	0.5	29.7	47.0
SMA2Z43AQ	40.85	43.0	45.15	11.6	35.0	1500	0.25	0.5	32.7	43.0
SMA2Z47AQ	44.65	47.0	49.35	10.6	40.0	1500	0.25	0.5	35.8	39.0
SMA2Z51AQ	48.45	51.0	53.55	9.8	48.0	1500	0.25	0.5	38.8	36.0
SMA2Z56AQ	53.20	56.0	58.80	9.0	55.0	2000	0.25	0.5	42.6	32.0
SMA2Z62AQ	58.90	62.0	65.10	8.1	60.0	2000	0.25	0.5	47.1	29.0
SMA2Z68AQ	64.60	68.0	71.40	7.4	75.0	2000	0.25	0.5	51.7	27.0
SMA2Z75AQ	71.25	75.0	78.75	6.7	90.0	2000	0.25	0.5	56.0	24.0
SMA2Z82AQ	77.90	82.0	86.10	6.1	100.0	3000	0.25	0.5	62.2	22.0
SMA2Z91AQ	86.45	91.0	95.55	5.5	125.0	3000	0.25	0.5	69.2	20.0
SMA2Z100AQ	95.00	100.0	105.00	5.0	175.0	3000	0.25	0.5	76.0	18.0
SMA2Z110AQ	104.50	110.0	115.50	4.5	250.0	4000	0.25	0.5	83.6	17.0
SMA2Z120AQ	114.00	120.0	126.00	4.2	325.0	4500	0.25	0.5	91.2	15.0
SMA2Z130AQ	123.50	130.0	136.50	3.8	400.0	5000	0.25	0.5	98.8	14.0
SMA2Z140AQ	133.00	140.0	147.00	3.6	500.0	5500	0.25	0.5	106.4	13.0
SMA2Z150AQ	142.50	150.0	157.50	3.3	575.0	6000	0.25	0.5	114.0	12.0
SMA2Z160AQ	152.00	160.0	168.00	3.1	650.0	6500	0.25	0.5	121.6	11.0
SMA2Z170AQ	161.50	170.0	178.50	2.9	675.0	7000	0.25	0.5	130.4	11.0
SMA2Z180AQ	171.00	180.0	189.00	2.8	725.0	7000	0.25	0.5	136.8	10.0
SMA2Z190AQ	180.50	190.0	199.50	2.6	825.0	8000	0.25	0.5	144.8	10.0
SMA2Z200AQ	190.00	200.0	210.00	2.5	1900.0	9990	0.25	0.5	152.0	9.0
SMA2Z220AQ	209.00	220.0	231.00	2.0	2000.0	8500	0.25	0.5	167.0	8.0

Notes:

(1) Nominal Zener voltage Range: 95% Typ.Vz (1)at Izt----105% Typ.Vz (1)at Izt



## ■ Characteristics (Typical)

Fig1 : Power Temperature Derating Curve

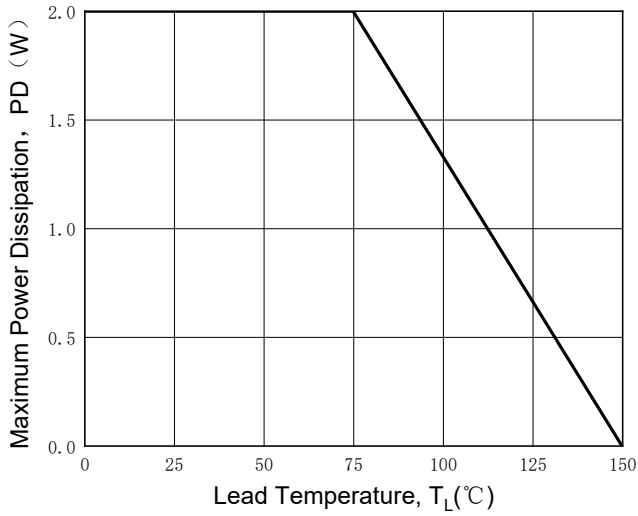


Fig2 : Typical Zener Breakdown Characteristics

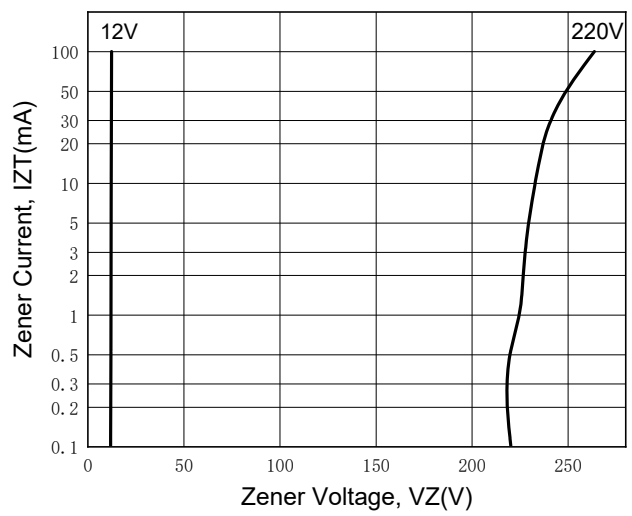
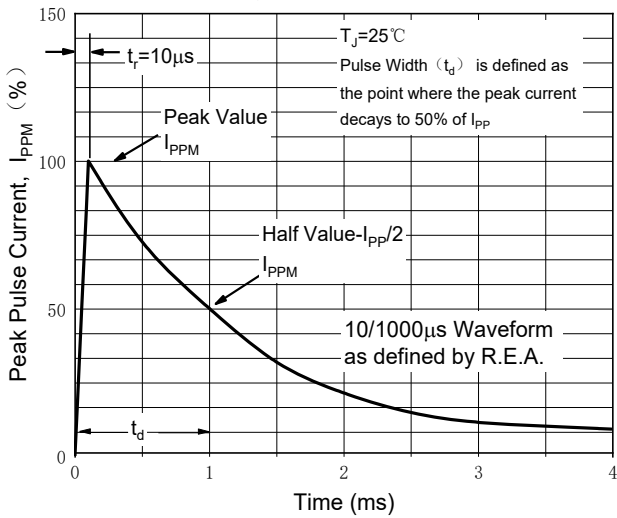


Fig.3 Pulse Waveform





# SMA2Z6.8AQ THRU SMA2Z220AQ

## Ordering Information (Example)

PREFERRED P/N	PACKAGE CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SMA2Z6.8AQ~SMA2Z220AQ	F2	Approximate 0.067	7500	120000	13" reel

## Marking Information

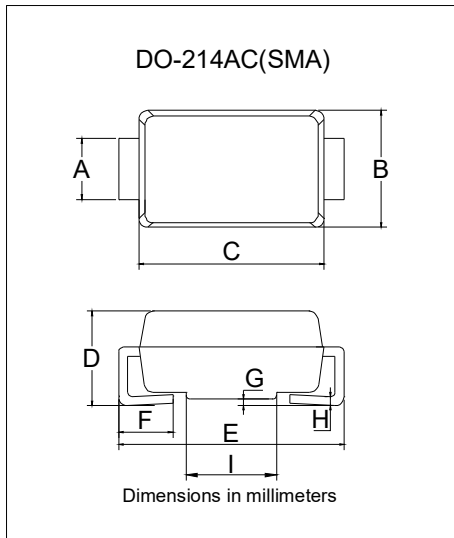


Note:

- All marking is at middle of the product body
- All marking is in laser printing
- XXXXX is marking code, like SMA2Z220AQ marking code is 2Z220
- Body color: Black
- YWW is date code, "Y" is year. "WW" is week.

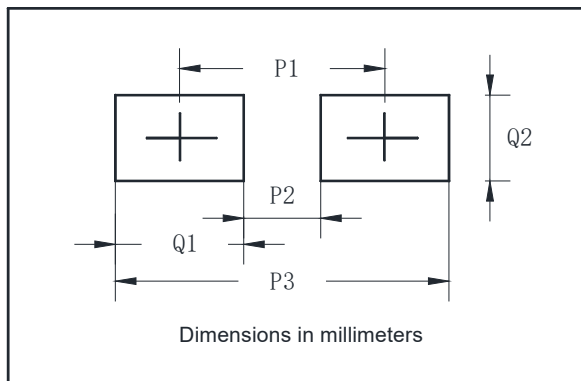
For instance:  
 The 45<sup>th</sup> week of 2021, date code is 145  
 The 45<sup>th</sup> week of 2022, date code is 245

## Outline Dimensions



DO-214AC(SMA)		
Dim	Min	Max
A	1.25	1.58
B	2.40	2.83
C	4.00	4.75
D	1.90	2.30
E	4.93	5.28
F	0.76	1.41
G	0.05	0.20
H	0.15	0.31
I	1.7	2.1

## Suggested Pad Layout



DO-214AC(SMA)	
Dim	Millimeters
P1	4.00
P2	1.50
P3	6.50
Q1	2.50
Q2	1.70



## SMA2Z6.8AQ THRU SMA2Z220AQ

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## SMA2Z6.8AQ THRU SMA2Z220AQ

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ISSUE	REVISION	DATE
1.0	Add Datasheet	23-Jan.-02

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