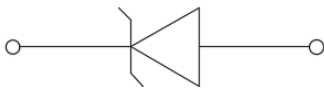
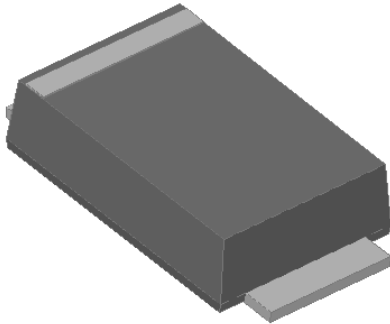


Surface Mount Zener Diodes



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:** SMAF
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_a=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	MAX
DC power dissipation at T _L = 75 °C	P _D	W	2.0
Maximum instantaneous forward voltage@ I _F =200mA	V _F	V	1.5
Maximum junction temperature	T _j	°C	-55 to +150
Storage temperature range	T _{stg}	°C	-55 to +150

■ Thermal Characteristics (T_a=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Conditions	VALUE
Thermal resistance(Typical)	R _{θJ-L} ⁽¹⁾	°C/W	junction to lead	30
	R _{θJ-A} ⁽¹⁾	°C/W	junction to ambient	150

Note
Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.2 x 0.2" (5.0 x 5.0 mm) copper pad areas



SMAF2Z6.8AQ THRU SMAF2Z220AQ

■Electrical Characteristics (T_a=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 ⁽¹⁾ at IZT	Typ. VZ ⁽¹⁾ at IZT	Max VZ ⁽¹⁾ at IZT		IZT	ZZT at IZT	ZZK at IZK	IZK	IR	
	V	V	V	mA	Ω	Ω	mA	μA	V	mA
SMAF2Z6.8AQ	6.46	6.8	7.14	73.5	2.0	700	1.00	10.0	4.0	266.0
SMAF2Z7.5AQ	7.13	7.5	7.88	66.5	2.0	700	0.50	10.0	5.0	242.0
SMAF2Z8.2AQ	7.79	8.2	8.61	61.0	2.3	700	0.50	10.0	6.0	220.0
SMAF2Z9.1AQ	8.65	9.1	9.56	55.0	2.5	700	0.50	10.0	7.0	200.0
SMAF2Z10AQ	9.50	10.0	10.50	50.0	3.5	700	0.25	10.0	7.6	182.0
SMAF2Z11AQ	10.45	11.0	11.55	45.5	4.0	700	0.25	1.0	8.4	166.0
SMAF2Z12AQ	11.40	12.0	12.60	41.5	4.5	700	0.25	1.0	9.1	152.0
SMAF2Z13AQ	12.35	13.0	13.65	38.5	5.0	700	0.25	0.5	9.9	138.0
SMAF2Z14AQ	13.30	14.0	14.70	35.7	5.5	700	0.25	0.5	10.6	130.0
SMAF2Z15AQ	14.25	15.0	15.75	33.4	7.0	700	0.25	0.5	11.4	122.0
SMAF2Z16AQ	15.20	16.0	16.80	31.2	8.0	700	0.25	0.5	12.2	114.0
SMAF2Z17AQ	16.15	17.0	17.85	29.4	9.0	750	0.25	0.5	13.0	107.0
SMAF2Z18AQ	17.10	18.0	18.90	27.8	10.0	750	0.25	0.5	13.7	100.0
SMAF2Z19AQ	18.05	19.0	19.95	26.3	11.0	750	0.25	0.5	14.4	95.0
SMAF2Z20AQ	19.00	20.0	21.00	25.0	11.0	750	0.25	0.5	15.2	90.0
SMAF2Z22AQ	20.90	22.0	23.10	22.8	12.0	750	0.25	0.5	16.7	82.0
SMAF2Z24AQ	22.80	24.0	25.20	20.8	13.0	750	0.25	0.5	18.2	76.0
SMAF2Z27AQ	25.65	27.0	28.35	18.5	18.0	750	0.25	0.5	20.6	68.0
SMAF2Z30AQ	28.50	30.0	31.50	16.6	20.0	1000	0.25	0.5	22.5	60.0
SMAF2Z33AQ	31.35	33.0	34.65	15.1	23.0	1000	0.25	0.5	25.1	55.0
SMAF2Z36AQ	34.20	36.0	37.80	13.9	25.0	1000	0.25	0.5	27.4	50.0
SMAF2Z39AQ	37.05	39.0	40.95	12.8	30.0	1000	0.25	0.5	29.7	47.0
SMAF2Z43AQ	40.85	43.0	45.15	11.6	35.0	1500	0.25	0.5	32.7	43.0
SMAF2Z47AQ	44.65	47.0	49.35	10.6	40.0	1500	0.25	0.5	35.8	39.0
SMAF2Z51AQ	48.45	51.0	53.55	9.8	48.0	1500	0.25	0.5	38.8	36.0
SMAF2Z56AQ	53.20	56.0	58.80	9.0	55.0	2000	0.25	0.5	42.6	32.0
SMAF2Z62AQ	58.90	62.0	65.10	8.1	60.0	2000	0.25	0.5	47.1	29.0
SMAF2Z68AQ	64.60	68.0	71.40	7.4	75.0	2000	0.25	0.5	51.7	27.0
SMAF2Z75AQ	71.25	75.0	78.75	6.7	90.0	2000	0.25	0.5	56.0	24.0
SMAF2Z82AQ	77.90	82.0	86.10	6.1	100.0	3000	0.25	0.5	62.2	22.0
SMAF2Z91AQ	86.45	91.0	95.55	5.5	125.0	3000	0.25	0.5	69.2	20.0
SMAF2Z100AQ	95.00	100.0	105.00	5.0	175.0	3000	0.25	0.5	76.0	18.0
SMAF2Z110AQ	104.50	110.0	115.50	4.5	250.0	4000	0.25	0.5	83.6	17.0
SMAF2Z120AQ	114.00	120.0	126.00	4.2	325.0	4500	0.25	0.5	91.2	15.0
SMAF2Z130AQ	123.50	130.0	136.50	3.8	400.0	5000	0.25	0.5	98.8	14.0
SMAF2Z140AQ	133.00	140.0	147.00	3.6	500.0	5500	0.25	0.5	106.4	13.0
SMAF2Z150AQ	142.50	150.0	157.50	3.3	575.0	6000	0.25	0.5	114.0	12.0
SMAF2Z160AQ	152.00	160.0	168.00	3.1	650.0	6500	0.25	0.5	121.6	11.0
SMAF2Z170AQ	161.50	170.0	178.50	2.9	675.0	7000	0.25	0.5	130.4	11.0
SMAF2Z180AQ	171.00	180.0	189.00	2.8	725.0	7000	0.25	0.5	136.8	10.0
SMAF2Z190AQ	180.50	190.0	199.50	2.6	825.0	8000	0.25	0.5	144.8	10.0
SMAF2Z200AQ	190.00	200.0	210.00	2.5	1900.0	9990	0.25	0.5	152.0	9.0
SMAF2Z220AQ	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



SMAF2Z6.8AQ THRU SMAF2Z220AQ

■ Characteristics (Typical)

Fig1 : Power Temperature Derating Curve

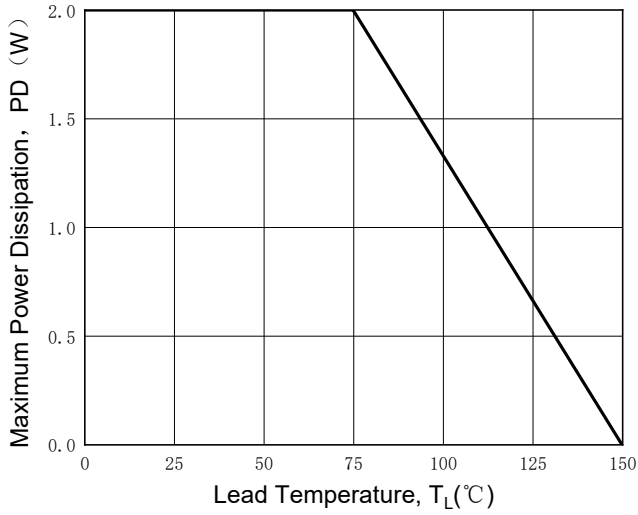


Fig2 : Typical Zener Breakdown Characteristics

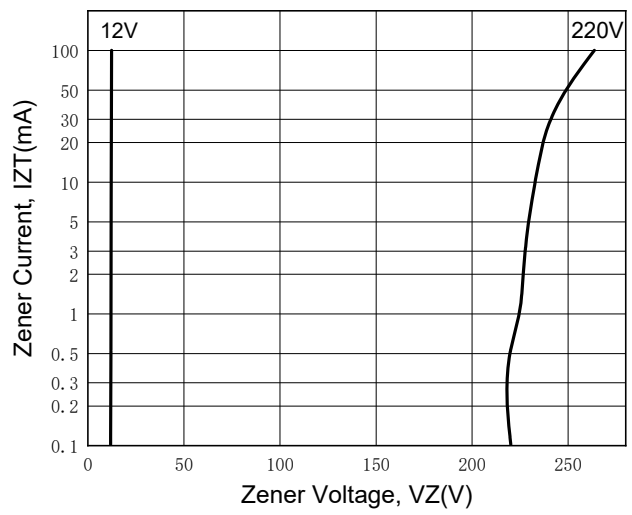
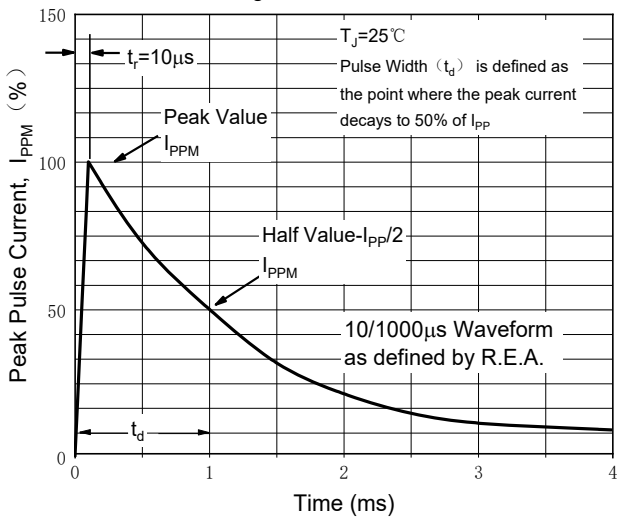


Fig.3 Pulse Waveform



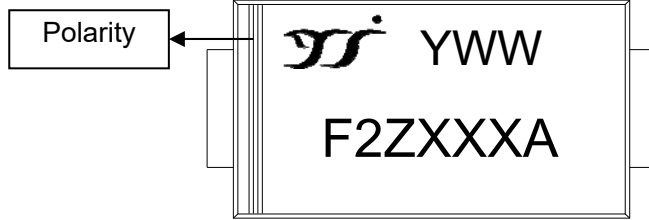


SMAF2Z6.8AQ THRU SMAF2Z220AQ

Ordering Information (Example)

PREFERRED P/N	PACKAGE CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SMAF2Z6.8AQ~SMAF2Z220AQ	F1	Approximate 0.034	3000	24000	96000	7" reel

Marking Information



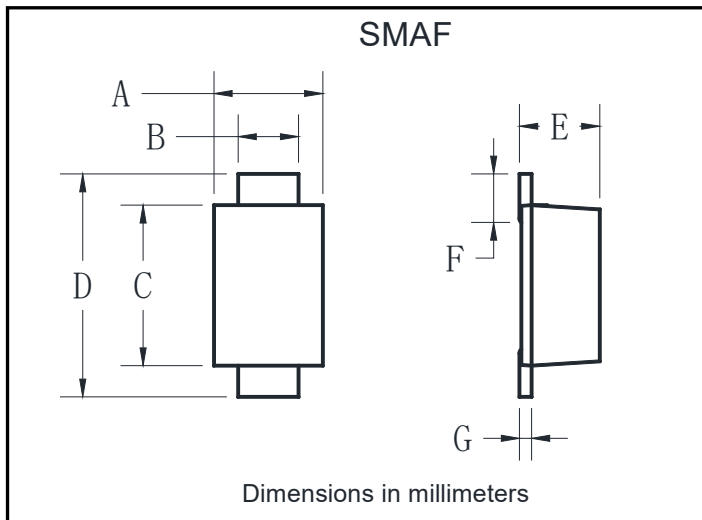
Note:

- All marking is at middle of the product body
- All marking is in laser printing
- XXXXX is marking code, like SMAF2Z220AQ marking code is F2Z220
- Body color: Black
- YWW is date code, "Y" is year. "WW" is week.

For instance:

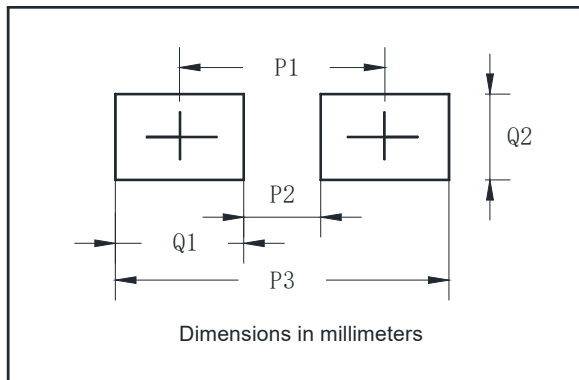
The 45th week of 2025, date code is 545
 The 45th week of 2026, date code is 645

Outline Dimensions



SMAF		
Dim	Min	Max
A	2.40	2.80
B	1.35	1.45
C	3.40	3.60
D	4.40	4.80
E	1.05	1.25
F	0.50	1.00
G	0.15	0.31

Suggested Pad Layout



SMAF	
Dim	Millimeters
P1	6.50
P2	4.00
P3	1.50
Q1	2.50
Q2	1.70



SMAF2Z6.8AQ THRU SMAF2Z220AQ

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