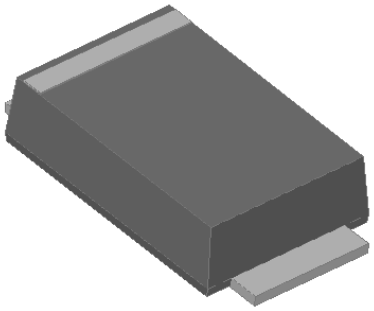
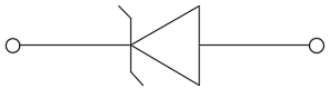
Surface Mount Zener Diodes





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 (Ta=25℃ Unless otherwise specified）

PARAMETER	SYMBOL	UNIT	MAX
DC power dissipation at T_L = 75 °C	P_D	W	3.0
Maximum instantaneous forward voltage@ I_F=200mA	V_F	V	1.5
Maximum junction temperature	T_J	℃	-55 to +150
Storage temperature range	T_{stg}	℃	-55 to +150

■Thermal Characteristics （Ta=25℃ Unless otherwise specified）

PARAMETER	SYMBOL	UNIT	Conditions	VALUE
Thermal resistance(Typical)	$R_{\theta J-L}$(1)	℃/W	junction to lead	25
	$R_{\theta J-A}$(1)	℃/W	junction to ambient	130

Note
(1) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.2" x 0.2" (5 mm x 5 mm) copper pad areas

■Electrical Characteristics（T_a=25℃ Unless otherwise specified）

Part Number	Nominal Zener voltage			Test current	Maximum dynamic impedance resistance			Maximum reverse leakage current		Maximum DC Zener Current
	Min V_Z (1)at I_{ZT}	Typ. V_Z (1)at I_{ZT}	Max V_Z (1)at I_{ZT}	I_{ZT}	Z_{ZT} at I_{ZT}	Z_{ZK} at I_{ZK}	I_{ZK}	I_R	Test voltage V_R	I_{ZM}
	V	V	V	mA	Ω	Ω	mA	μA	V	mA
SMAF3Z6.8AQ	6.46	6.8	7.14	55.1	2.5	200	1.00	5	5.2	440
SMAF3Z7.5AQ	7.13	7.5	7.88	50.0	3.0	400	0.50	5	6.0	400
SMAF3Z8.2AQ	7.79	8.2	8.61	45.7	3.5	400	0.50	5	6.5	364
SMAF3Z9.1AQ	8.65	9.1	9.56	41.2	4.0	500	0.50	5	7.0	328
SMAF3Z10AQ	9.50	10.0	10.50	37.5	4.5	500	0.25	5	8.0	300
SMAF3Z11AQ	10.45	11.0	11.55	34.1	5.5	550	0.25	1	8.4	272
SMAF3Z12AQ	11.40	12.0	12.60	31.2	6.5	550	0.25	1	9.1	250
SMAF3Z13AQ	12.35	13.0	13.65	28.8	7.0	550	0.25	1	9.9	230
SMAF3Z15AQ	14.25	15.0	15.75	25.0	9.0	600	0.25	1	11.4	200
SMAF3Z16AQ	15.20	16.0	16.80	23.4	10.0	600	0.25	1	12.2	186
SMAF3Z18AQ	17.10	18.0	18.90	20.8	12.0	650	0.25	1	13.7	166
SMAF3Z20AQ	19.00	20.0	21.00	18.7	14.0	650	0.25	1	15.2	150
SMAF3Z22AQ	20.90	22.0	23.10	17.0	17.5	650	0.25	1	16.7	136
SMAF3Z24AQ	22.80	24.0	25.20	15.6	19.0	700	0.25	1	18.2	124
SMAF3Z27AQ	25.65	27.0	28.35	13.9	23.0	700	0.25	1	20.6	110
SMAF3Z30AQ	28.50	30.0	31.50	12.5	28.0	750	0.25	1	22.8	100
SMAF3Z33AQ	31.35	33.0	34.65	11.4	33.0	800	0.25	1	25.1	90
SMAF3Z36AQ	34.20	36.0	37.80	10.4	38.0	850	0.25	1	27.4	82
SMAF3Z39AQ	37.05	39.0	40.95	9.6	45.0	900	0.25	1	29.7	76
SMAF3Z43AQ	40.85	43.0	45.15	8.7	53.0	950	0.25	1	32.7	68
SMAF3Z47AQ	44.65	47.0	49.35	8.0	67.0	1000	0.25	1	35.8	62
SMAF3Z51AQ	48.45	51.0	53.55	7.3	70.0	1100	0.25	1	38.8	58
SMAF3Z56AQ	53.20	56.0	58.80	6.7	86.0	1300	0.25	1	42.6	52
SMAF3Z62AQ	58.90	62.0	65.10	6.0	100.0	1500	0.25	1	47.1	48
SMAF3Z68AQ	64.60	68.0	71.40	5.5	120.0	1700	0.25	1	51.7	44
SMAF3Z75AQ	71.25	75.0	78.75	5.0	140.0	2000	0.25	1	56.0	40
SMAF3Z82AQ	77.90	82.0	86.10	4.6	160.0	2500	0.25	1	62.2	36
SMAF3Z91AQ	86.45	91.0	95.55	4.1	200.0	3000	0.25	1	69.2	32
SMAF3Z100AQ	95.00	100.0	105.00	3.7	250.0	3100	0.25	1	76.0	30
SMAF3Z110AQ	104.50	110.0	115.50	3.4	300.0	4000	0.25	1	83.6	26
SMAF3Z120AQ	114.00	120.0	126.00	3.1	380.0	4500	0.25	1	91.2	24
SMAF3Z130AQ	123.50	130.0	136.50	2.9	450.0	5000	0.25	1	98.8	22
SMAF3Z150AQ	142.50	150.0	157.50	2.5	600.0	6000	0.25	1	114.0	20
SMAF3Z160AQ	152.00	160.0	168.00	2.3	700.0	6500	0.25	1	121.6	18
SMAF3Z180AQ	171.00	180.0	189.00	2.1	900.0	7000	0.25	1	136.8	16
SMAF3Z200AQ	190.00	200.0	210.00	1.9	1200.0	8000	0.25	1	152.0	14

Notes:

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

I■ **Characteristics** (Typical)

Fig.1:Power Temperature Derating Crue

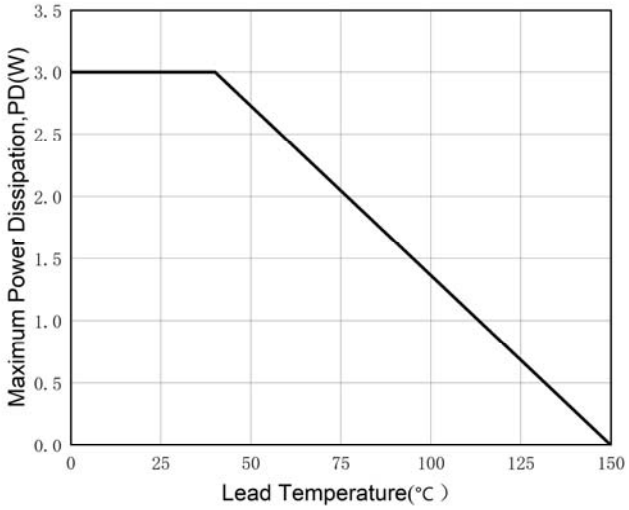


Fig.2:Typical Zener Breakdown Characteristics

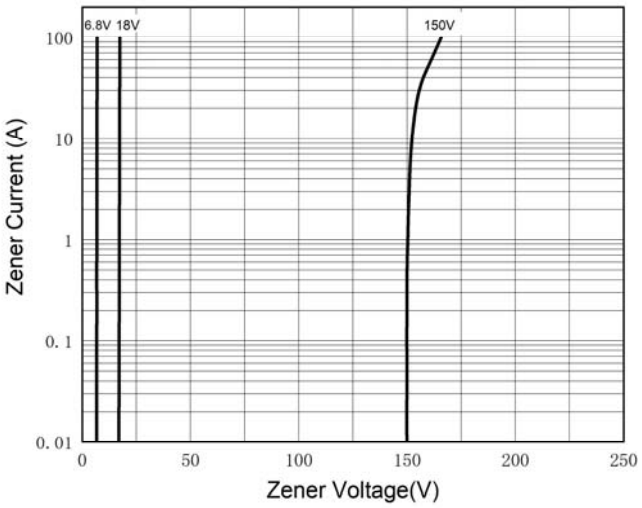
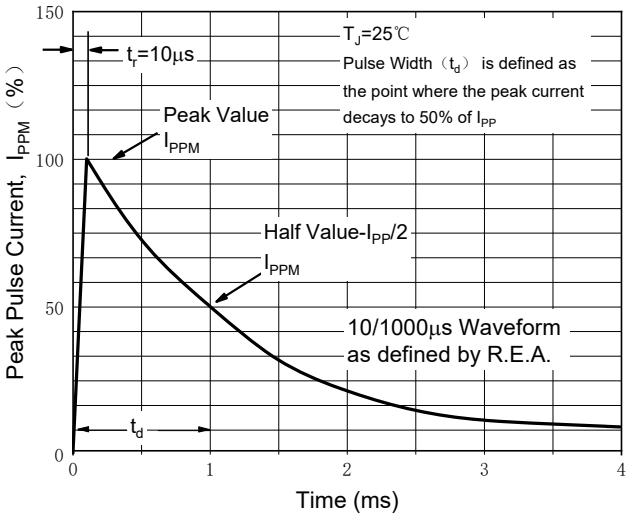


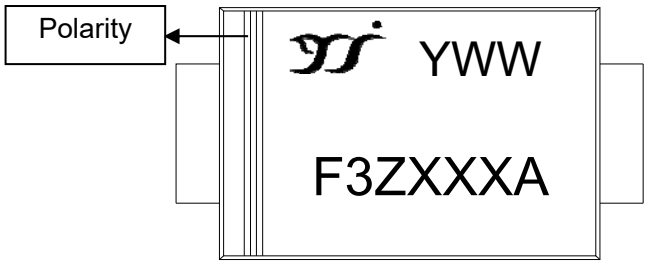
Fig.3 Pulse Waveform



■Ordering Information (Example)

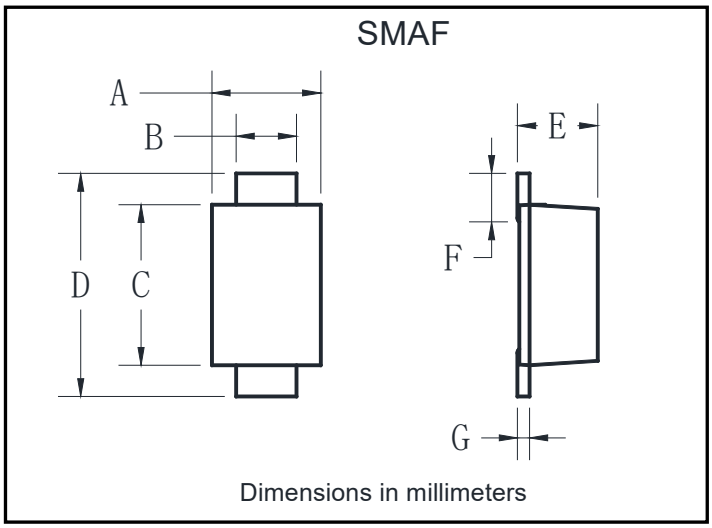
PREFERED P/N	PACKAGE CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SMAF3Z6.8AQ ~SMAF3Z200AQ	F1	Approximate 0.034	3000	24000	96000	7" reel

■ Marking Information



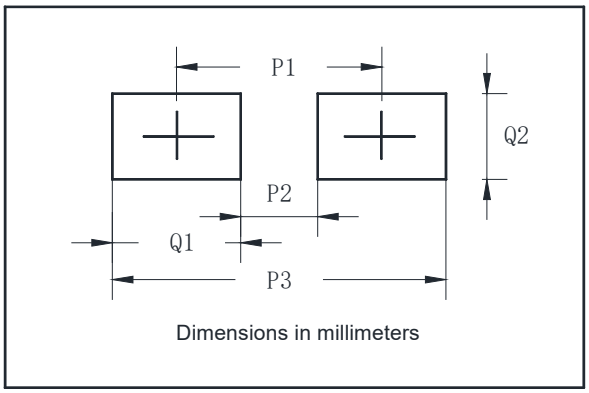
Note:
1. All marking is at middle of the product body
2. All marking is in laser printing
3.XXX is marking code, like SMAF3Z6.8AQ marking code is F3Z6.8A
4. Body color: Black
5. YWW is date code, "Y" is year. "WW" is week.
For instance:
The 45th week of 2025, date code is 545

■ 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	0.16	0.25

■ Suggested pad layout



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

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