



1. Features

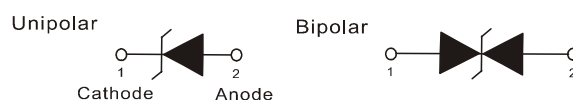
- For surface mounted applications in order to optimize board space.
- Glass passivated junction
- Low inductance
- Plastic package has Underwriters Laboratory Fammability Classification 94V-0
- High temperature soldering : 260°C /10 seconds at terminals
- AEC-Q101 qualified available

Case: SMA(DO-214AC)



2. Mechanical Data

- Case:SMA(DO-214AC) molded plastic
- Terminals: plated leads solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode end
- Mounting position: Any



3. Maximum Ratings and Electrical Characteristics

Rating at 25°C Ambient temperature unless otherwise specified. Resistive or inductive load,
For Capacitive load derate current by 20%.

Parameter	Symbol	Value	Unit
Peak pulse power dissipation with a 10/1000 μ s waveform ⁽¹⁾ Fig.2	P_{PPM}	400	W
Peak pulse current with a waveform ⁽¹⁾	I_{PPM}	See next table	A
Power dissipation on infinite heatsink at $T_L=75^\circ\text{C}$	P_D	1.0	W
Peak forward surge current 8.3 ms single half sine-wave uni-directional only ⁽²⁾	I_{FSM}	40	A
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Note:

(1) Non-repetitive current pulse per Fig.3 and derated above $T_A=25^\circ\text{C}$ per Fig.1.

(2) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum.



P4SMA Series

400W,6.8V - 440V Surface Mount Transient Voltage Suppressor

4. Electrical Characteristics (TA=25°C unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Marking Code		Breakdown Voltage $V_{BR@I_T}$			Maximum Reverse Leakage $I_R@V_{RWM}(uA)$	Working Peak Reverse Voltage $V_{RWM}(V)$	Maximum Reverse Surge Current $I_{pp}(A)$	Maximum Clamping Voltage $V_C@I_{pp}(V)$
		Uni	Bi	Min(V)	Max(V)	$I_T(mA)$				
P4SMA6.8A	P4SMA6.8CA	6V8A	6V8C	6.46	7.14	10	1000	5.8	38.10	10.5
P4SMA7.5A	P4SMA7.5CA	7V5A	7V5C	7.13	7.88	10	500	6.4	35.40	11.3
P4SMA8.2A	P4SMA8.2CA	8V2A	8V2C	7.79	8.61	10	200	7.0	33.06	12.1
P4SMA9.1A	P4SMA9.1CA	9V1A	9V1C	8.65	9.56	1	50	7.8	29.85	13.4
P4SMA10A	P4SMA10CA	10A	10C	9.5	10.5	1	10	8.6	27.59	14.5
P4SMA11A	P4SMA11CA	11A	11C	10.45	11.55	1	5	9.4	25.64	15.6
P4SMA12A	P4SMA12CA	12A	12C	11.4	12.6	1	5	10.2	23.95	16.7
P4SMA13A	P4SMA13CA	13A	13C	12.35	13.65	1	5	11.1	21.98	18.2
P4SMA15A	P4SMA15CA	15A	15C	14.25	15.75	1	1	12.8	18.87	21.2
P4SMA16A	P4SMA16CA	16A	16C	15.2	16.8	1	1	13.6	17.78	22.5
P4SMA18A	P4SMA18CA	18A	18C	17.1	18.9	1	1	15.3	15.87	25.2
P4SMA20A	P4SMA20CA	20A	20C	19.0	21.0	1	1	17.1	14.44	27.7
P4SMA22A	P4SMA22CA	22A	22C	20.9	23.1	1	1	18.8	13.07	30.6
P4SMA24A	P4SMA24CA	24A	24C	22.8	25.2	1	1	20.5	12.05	33.2
P4SMA27A	P4SMA27CA	27A	27C	25.65	28.35	1	1	23.1	10.67	37.5
P4SMA30A	P4SMA30CA	30A	30C	28.5	31.5	1	1	25.6	9.66	41.4
P4SMA33A	P4SMA33CA	33A	33C	31.35	34.65	1	1	28.2	8.75	45.7
P4SMA36A	P4SMA36CA	36A	36C	34.2	37.8	1	1	30.8	8.02	49.9
P4SMA39A	P4SMA39CA	39A	39C	37.05	40.95	1	1	33.3	7.42	53.9
P4SMA43A	P4SMA43CA	43A	43C	40.85	45.15	1	1	36.8	6.75	59.3
P4SMA47A	P4SMA47CA	47A	47C	44.65	49.35	1	1	40.2	6.17	64.8
P4SMA51A	P4SMA51CA	51A	51C	48.45	53.55	1	1	43.6	5.71	70.1
P4SMA56A	P4SMA56CA	56A	56C	53.2	58.8	1	1	47.8	5.19	77
P4SMA62A	P4SMA62CA	62A	62C	58.9	65.1	1	1	53.0	4.71	85
P4SMA68A	P4SMA68CA	68A	68C	64.6	71.4	1	1	58.1	4.35	92
P4SMA75A	P4SMA75CA	75A	75C	71.25	78.75	1	1	64.1	3.88	103
P4SMA82A	P4SMA82CA	82A	82C	77.9	86.1	1	1	70.1	3.54	113
P4SMA91A	P4SMA91CA	91A	91C	86.45	95.35	1	1	77.8	3.20	125
P4SMA100A	P4SMA100CA	100A	100C	95.0	105.0	1	1	85.5	2.92	137
P4SMA110A	P4SMA110CA	110A	110C	104.5	115.5	1	1	94	2.63	152
P4SMA120A	P4SMA120CA	120A	120C	114.0	126.0	1	1	102	2.42	165
P4SMA130A	P4SMA130CA	130A	130C	123.5	136.5	1	1	111	2.23	179
P4SMA150A	P4SMA150CA	150A	150C	142.5	157.5	1	1	128	1.93	207
P4SMA160A	P4SMA160CA	160A	160C	152.0	168.0	1	1	136	1.83	219
P4SMA170A	P4SMA170CA	170A	170C	161.5	178.5	1	1	145	1.71	234



P4SMA Series

400W,6.8V - 440V Surface Mount Transient Voltage Suppressor

4. Electrical Characteristics (TA=25°C unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Marking Code		Breakdown Voltage $V_{BR@I_T}$			Maximum Reverse Leakage $I_R@V_{RWM}(\mu A)$	Working Peak Reverse Voltage $V_{RWM}(V)$	Maximum Reverse Surge Current $I_{PP}(A)$	Maximum Clamping Voltage $V_C@I_{PP}(V)$
		Uni	Bi	Min(V)	Max(V)	$I_T(mA)$				
P4SMA180A	P4SMA180CA	180A	180C	171.0	189.0	1	1	154	1.63	246
P4SMA200A	P4SMA200CA	200A	200C	190.0	210.0	1	1	171	1.46	274
P4SMA220A	P4SMA220CA	220A	220C	209.0	231.0	1	1	185	1.22	328
P4SMA250A	P4SMA250CA	250A	250C	237.5	262.5	1	1	214	1.16	344
P4SMA300A	P4SMA300CA	300A	300C	285.0	315.0	1	1	256	0.97	414
P4SMA350A	P4SMA350CA	350A	350C	332.5	367.5	1	1	299.3	0.83	482
P4SMA380A	P4SMA380CA	380A	380C	361.0	399.0	1	1	324.9	0.76	524.4
P4SMA400A	P4SMA400CA	400A	400C	380.0	420.0	1	1	342	0.72	548
P4SMA440A	P4SMA440CA	440A	440C	418.0	462.0	1	1	376.2	0.66	602

Note:

① Surge waveform: 10/1000 μs

V_{RWM} : Stand-off voltage -- Maximum voltage that can be applied

V_{BR} : Breakdown voltage

V_C : Clamping voltage -- Peak voltage measured across the suppressor at a specified I_{PP}

I_R : Reverse leakage current



5. Rating And Characteristic Curves

Fig.1 Derating Curve

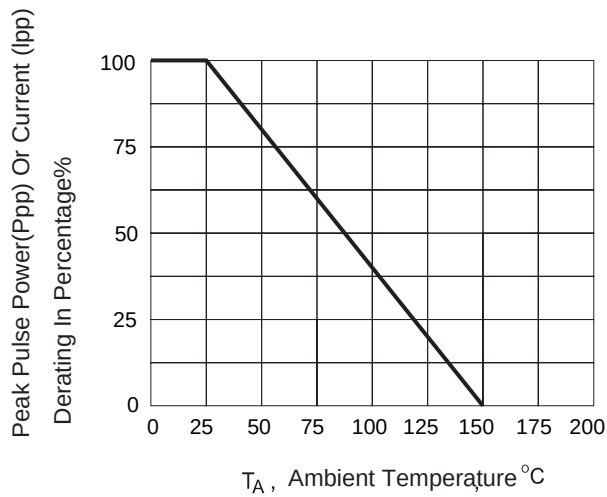


Fig. 2 Peak Pulse Power Rating Curve

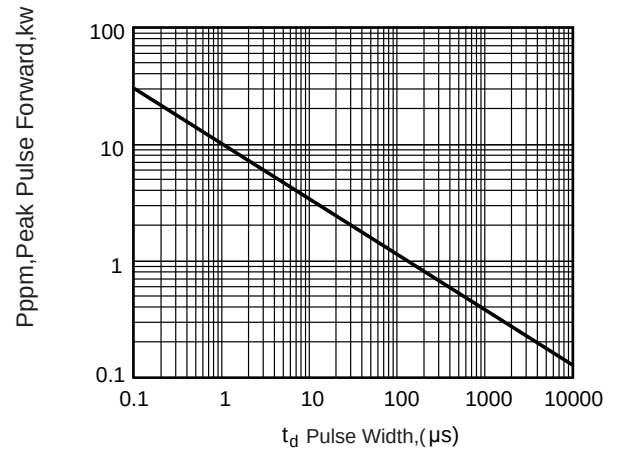


Fig.3 Clamping Power Pulse Waveform

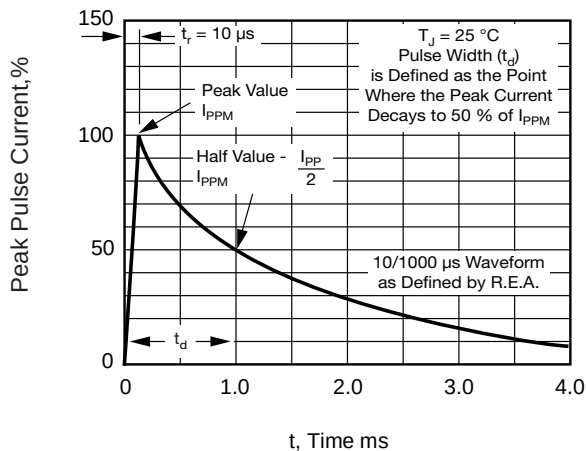
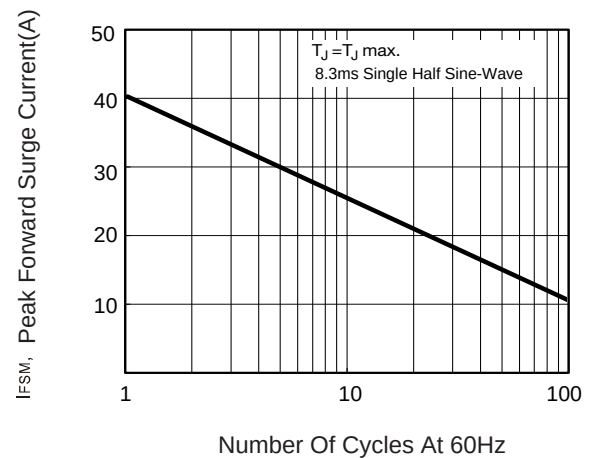


Fig.4 Maximum Non-repetitive Forward Surge Current Unidirectional only

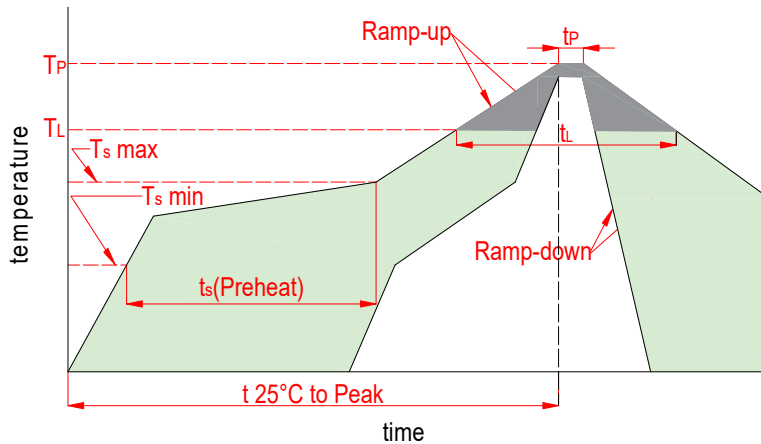




P4SMA Series

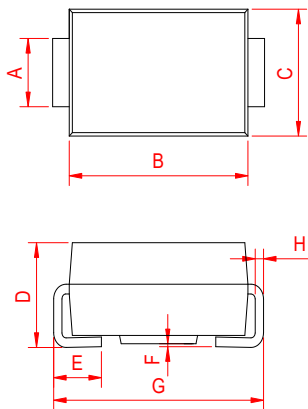
400W,6.8V - 440V Surface Mount Transient Voltage Suppressor

6. Soldering Parameters



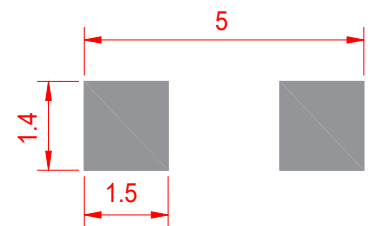
Reflow Condition		Lead-free
Pre Heat	Temp. min($T_s(\min)$)	150℃
	Temp. max($T_s(\min)$)	200℃
	Time(min to max)(t_s)	60~120s
Aver. ramp up rate(Liquidus Temp.)(T_L) to peak		3℃/s max
$T_s(\max)$ to T_L -Ramp-up Rate		3℃/s max
Reflow	Temp.(T_L)(Liquidus)	217℃
	Temp.(t_L)(Liquidus)	60~150s
Peak Temp.(T_p)		260 ^{+0/-5} ℃
Time within actual peak Temp.(t_p)		30s max
Ramp-down Rate		6℃/s max
Time 25℃ to peak Tempe.(T_p)		8 minutes max
Do not exceed		260℃

7. Dimensions



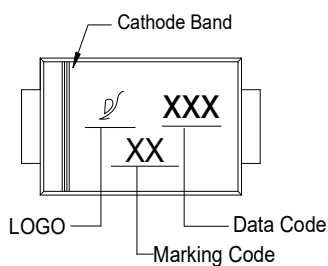
Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.051	0.059	1.30	1.50
B	0.157	0.181	4.00	4.60
C	0.094	0.110	2.40	2.80
D	0.079	0.103	2.00	2.62
E	0.030	0.060	0.76	1.52
F	0.002	0.008	0.05	0.20
G	0.189	0.208	4.80	5.28
H	0.006	0.012	0.15	0.31

Mounting PAD Layout

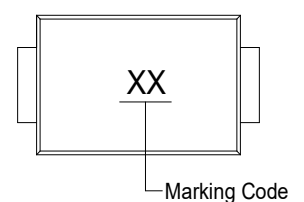
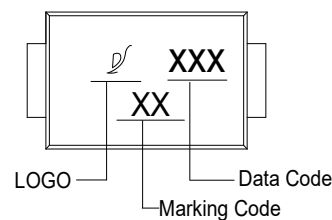
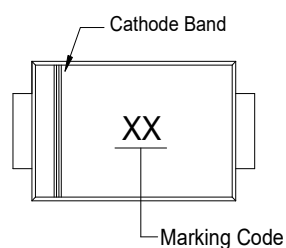


8.Part Marking System

Unipolar



Bipolar



9. Package Information

Package	Tape Width (mm)	Reel Size		Quantity(pcs)	AEC-Q101	LOGO
		mm	inch			
SMA	12	330	13	5000	No	
SMA	12	330	13	7500	No	



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