



1. Features

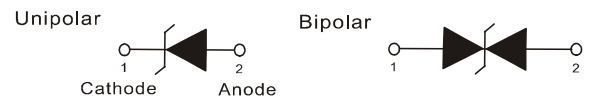
- For surface mounted applications in order to optimize board space.
- Glass passivated junction
- Low inductance
- Plastic package has Underwriters Laboratory Fammability Classification 94V-0
- High temperature soldering : 260°C /10 seconds at terminals

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°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	°C

Note:

(1) Non-repetitive current pulse per Fig.3 and derated above T_A =25°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.



SMAJ Series

400W,5.0V - 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)	$I_T(mA)$				
SMAJ5.0A	SMAJ5.0CA	AE	WE	6.4	7.07	10	800	5	43.5	9.2
SMAJ6.0A	SMAJ6.0CA	AG	WG	6.67	7.37	10	800	6	38.8	10.3
SMAJ6.5A	SMAJ6.5CA	AK	WK	7.22	7.98	10	500	6.5	35.7	11.2
SMAJ7.0A	SMAJ7.0CA	AM	WM	7.78	8.6	10	200	7	33.3	12
SMAJ7.5A	SMAJ7.5CA	AP	WP	8.33	9.21	1	100	7.5	31.0	12.9
SMAJ8.0A	SMAJ8.0CA	AR	WR	8.89	9.83	1	50	8	29.4	13.6
SMAJ8.5A	SMAJ8.5CA	AT	WT	9.44	10.4	1	10	8.5	27.8	14.4
SMAJ9.0A	SMAJ9.0CA	AV	WV	10.0	11.1	1	5	9	26.0	15.4
SMAJ10A	SMAJ10CA	AX	WX	11.1	12.3	1	5	10	23.5	17
SMAJ11A	SMAJ11CA	AZ	WZ	12.2	13.5	1	1	11	22.0	18.2
SMAJ12A	SMAJ12CA	BE	XE	13.3	14.7	1	1	12	20.1	19.9
SMAJ13A	SMAJ13CA	BG	XG	14.4	15.9	1	1	13	18.6	21.5
SMAJ14A	SMAJ14CA	BK	XK	15.6	17.2	1	1	14	17.2	23.2
SMAJ15A	SMAJ15CA	BM	XM	16.7	18.5	1	1	15	16.4	24.4
SMAJ16A	SMAJ16CA	BP	XP	17.8	19.7	1	1	16	15.4	26
SMAJ17A	SMAJ17CA	BR	XR	18.9	20.9	1	1	17	14.5	27.6
SMAJ18A	SMAJ18CA	BT	XT	20.0	22.1	1	1	18	13.7	29.2
SMAJ20A	SMAJ20CA	BV	XV	22.2	24.5	1	1	20	12.4	32.4
SMAJ22A	SMAJ22CA	BX	XX	24.4	26.9	1	1	22	11.3	35.5
SMAJ24A	SMAJ24CA	BZ	XZ	26.7	29.5	1	1	24	10.3	38.9
SMAJ26A	SMAJ26CA	CE	YE	28.9	31.9	1	1	26	9.5	42.1
SMAJ28A	SMAJ28CA	CG	YG	31.1	34.4	1	1	28	8.8	45.4
SMAJ30A	SMAJ30CA	CK	YK	33.3	36.8	1	1	30	8.3	48.4
SMAJ33A	SMAJ33CA	CM	YM	36.7	40.6	1	1	33	7.5	53.3
SMAJ36A	SMAJ36CA	CP	YP	40.0	44.2	1	1	36	6.9	58.1
SMAJ40A	SMAJ40CA	CR	YR	44.4	49.1	1	1	40	6.2	64.5
SMAJ43A	SMAJ43CA	CT	YT	47.8	52.8	1	1	43	5.8	69.4
SMAJ45A	SMAJ45CA	CV	YV	50.0	55.3	1	1	45	5.5	72.7
SMAJ48A	SMAJ48CA	CX	YX	53.3	58.9	1	1	48	5.2	77.4
SMAJ51A	SMAJ51CA	CZ	YZ	56.7	62.7	1	1	51	4.9	82.4
SMAJ54A	SMAJ54CA	RE	ZE	60.0	66.3	1	1	54	4.6	87.1
SMAJ58A	SMAJ58CA	RG	ZG	64.4	71.2	1	1	58	4.3	93.6
SMAJ60A	SMAJ60CA	RK	ZK	66.7	73.7	1	1	60	4.1	96.8
SMAJ64A	SMAJ64CA	RM	ZM	71.1	78.6	1	1	64	3.9	103
SMAJ70A	SMAJ70CA	RP	ZP	77.8	86	1	1	70	3.6	113



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)	$I_T(mA)$				
SMAJ75A	SMAJ75CA	RR	ZR	83.3	82.1	1	1	75	3.3	121
SMAJ78A	SMAJ78CA	RT	ZT	86.7	95.8	1	1	78	3.2	126
SMAJ85A	SMAJ85CA	RV	ZV	94.4	104	1	1	85	2.9	137
SMAJ90A	SMAJ90CA	RX	DX	100	111	1	1	90	2.8	146
SMAJ100A	SMAJ100CA	RZ	DZ	111	123	1	1	100	2.5	162
SMAJ110A	SMAJ110CA	SE	VE	122	135	1	1	110	2.3	177
SMAJ120A	SMAJ120CA	SG	VG	133	147	1	1	120	2.1	193
SMAJ130A	SMAJ130CA	SK	VK	144	159	1	1	130	1.9	209
SMAJ150A	SMAJ150CA	SM	VM	167	185	1	1	150	1.7	243
SMAJ160A	SMAJ160CA	SS	VP	178	197	1	1	160	1.6	259
SMAJ170A	SMAJ170CA	SR	VR	189	209	1	1	170	1.5	275
SMAJ180A	SMAJ180CA	ST	VT	200	220	1	1	180	1.4	292
SMAJ200A	SMAJ200CA	SV	VV	224	247	1	1	200	1.2	324
SMAJ220A	SMAJ220CA	SX	VX	246	272	1	1	220	1.1	356
SMAJ250A	SMAJ250CA	SZ	VZ	279	309	1	1	250	1.0	405
SMAJ300A	SMAJ300CA	TE	UE	335	371	1	1	300	0.8	486
SMAJ350A	SMAJ350CA	TG	UG	391	431	1	1	350	0.7	567
SMAJ400A	SMAJ400CA	TK	UK	447	494	1	1	400	0.6	648
SMAJ440A	SMAJ440CA	TM	UM	492	543	1	1	440	0.6	713

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

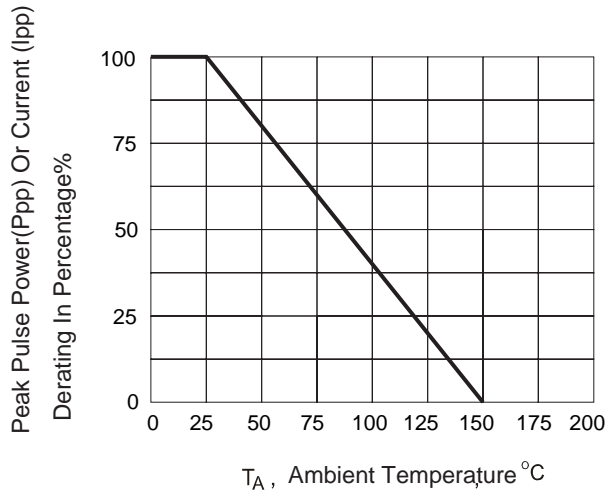


Fig. 2 Peak Pulse Power Rating Curve

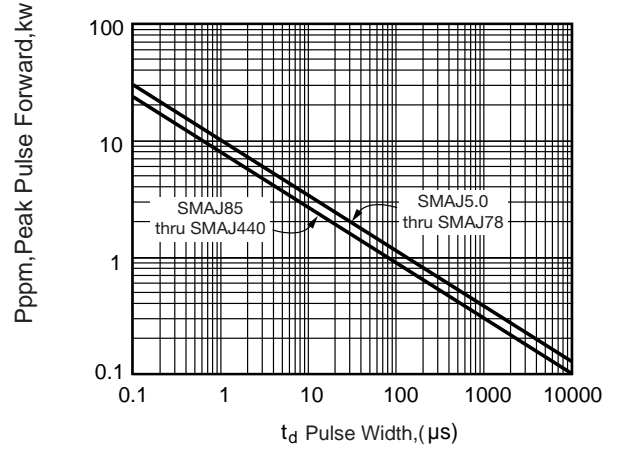


Fig.3 Clamping Power Pulse Waveform

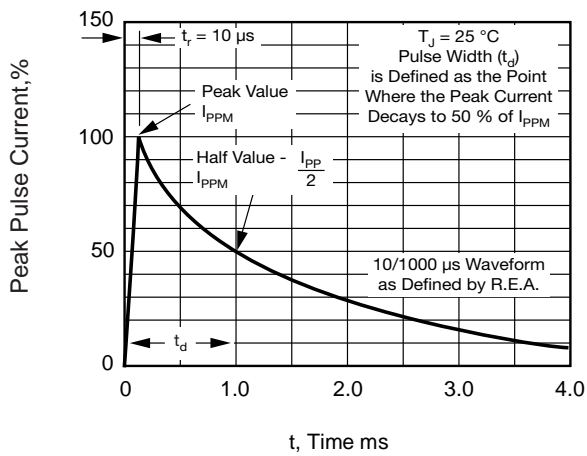
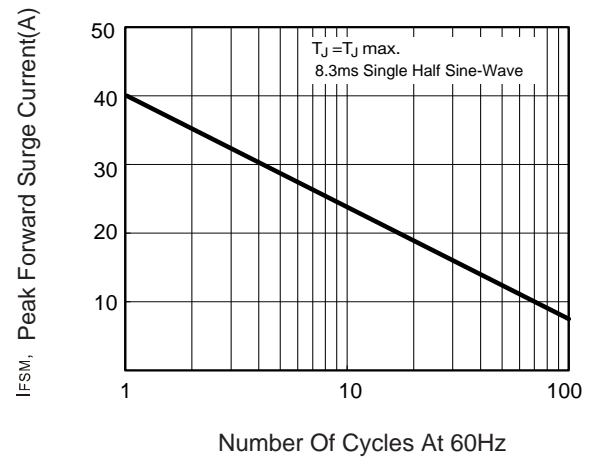


Fig.4 Maximum Non-repetitive Forward Surge Current Unidirectional only

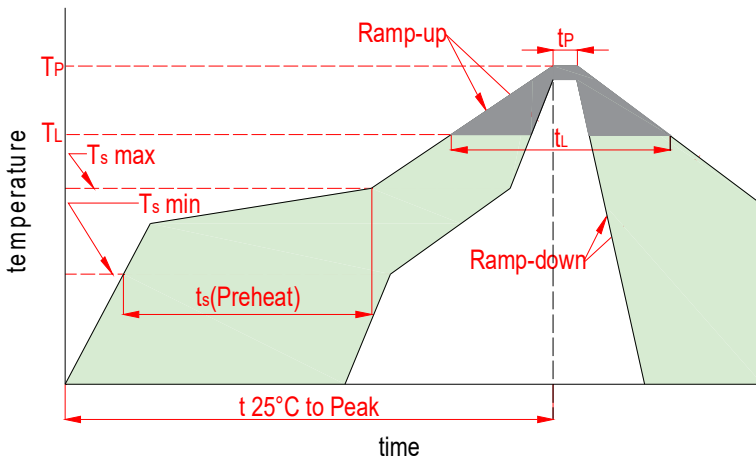




SMAJ Series

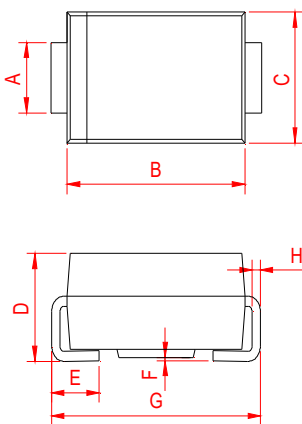
400W,5.0V - 440V Surface Mount Transient Voltage Suppressor

6. Soldering Parameters



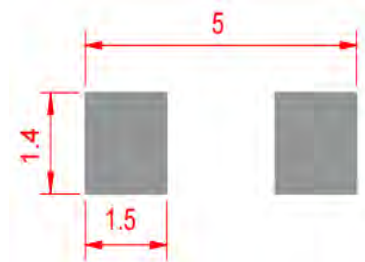
Reflow Condition		Lead-free
Pre Heat	Temp. min($T_s(\text{min})$)	150°C
	Temp. max($T_s(\text{min})$)	200°C
	Time(min to max)(t_s)	60~120s
Aver. ramp up rate(Liquidus Temp.)(T_L)to peak		3°C/s max
$T_s(\text{max})$ to T_L -Ramp-up Rate		3°C/s max
Reflow	Temp. (T_L)(Liquidus)	217°C
	Temp. (t_L)(Liquidus)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

7. Dimensions



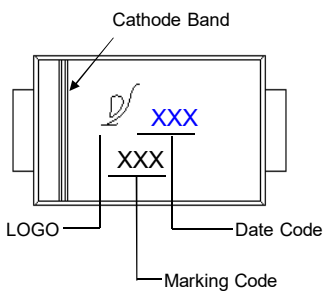
Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.051	0.059	1.30	1.50
B	0.157	0.181	4.00	4.60
C	0.094	0.110	2.40	2.80
D	0.079	0.103	2.00	2.62
E	0.030	0.060	0.76	1.52
F	0.002	0.008	0.05	0.20
G	0.189	0.208	4.80	5.28
H	0.006	0.012	0.15	0.31

Mounting PAD Layout

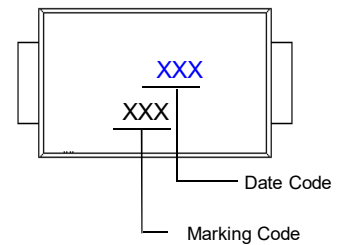
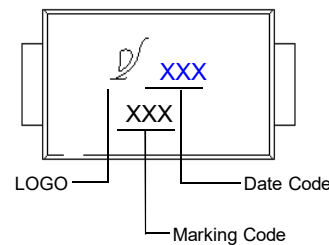
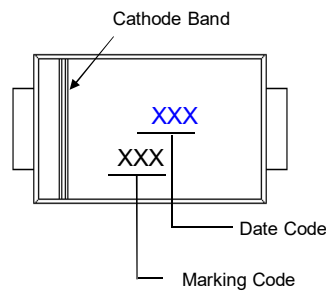


8. Part Marking System

Unipolar



Bipolar



9. Package Information

Package	Tape Width (mm)	Reel Size		Quantity(pcs)
		mm	inch	
SMA(DO-214AC)	12	330	13	5000
SMA(DO-214AC)	12	330	13	7500



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