

### Features

- ◆ Optimized for LAN protection applications
- ◆ Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ◆ Glass passivated junction chip
- ◆ 400w peak pulse power capability
- ◆ Excellent clamping capability
- ◆ Low incremental surge resistance
- ◆ Fast response time: typically less than 1.0ps from 0v to  $V_{BRmin}$
- ◆ P/N suffix V means AEC-Q101 qualified, e.g: SMAJ24AV

### Mechanical Data

**Case** : Molded plastic body

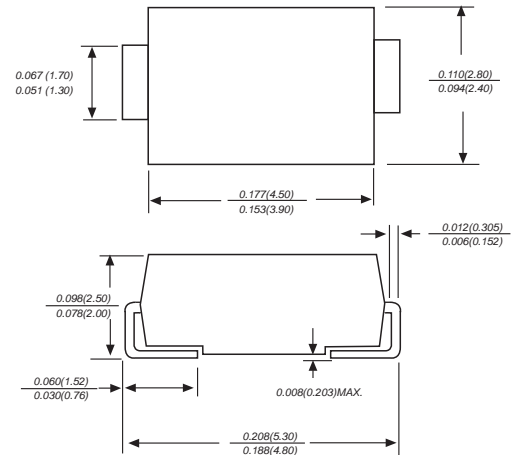
**Terminals** : Solder plated, solderable per MIL-STD-750, Method 2026

**Polarity** : Polarity symbol marking on body

**Mounting Position** : Any

**Weight** : 0.0023 ounce, 0.07 grams

**DO-214AC/SMA**



Uni-Polar

Bi-Polar



Dimensions in inches and (millimeters)

### Maximum Ratings And Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	SYMBOLS	VALUE	UNITS
Peak pulse power dissipation with a 10/1000μs wavetorm(NOTE 1,2,4,FIG.1)	$P_{PPM}$	Minimum 400	Watts
Peak forward surge current (Note 3)	$I_{FSM}$	40.0	Amps
Peak pulse current with a 10/1000μs waveform(NOTE 1,2,5)Fig.2	$I_{PPM}$	See Table 1	Amps
Steady State Power Dissipation(Note 4)	$P_{M(AV)}$	1.0	Watts
Operating junction and storage temperature range	$T_{STG}, T_J$	-55 to + 150	°C

**Notes:**1.Non-repetitive current pulse,per Fig.3 and derated above  $T_A=25^\circ\text{C}$  per Fig.2

2.Mounted on 5.0mm copper pads to each terminal

3.Measured on 8.3ms single half sine-wine.For uni-directional devices only.

4.Lead temperature at  $75^\circ\text{C}=T_L$

5.Peak pulse power waveform is 10/1000μs



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# SMAJ5.0(C)A~SMAJ440(C)A

## 400W Surface Mount Transient Voltage Suppressors

Type		Marking		Peak Pulse Power	Stand-off Voltage	Maximum Reverse Current at VR	Breakdown Voltage at IT		Test Current	Maximum Peak Pulse Current	Maximum Clamping Voltage at Ipp
Uni-Polar	Bi-Polar	Uni-Polar	Bi-Polar	PPP	V(R)	IR	V (BR) (V)		IT	Ipp	Vc
				(W)	(V)	(uA)	Min.	Max.	(mA)	(A)	(V)
SMAJ5.0A	SMAJ5.0CA	AE	WE	400	5	800	6.4	7	10	43.5	9.2
SMAJ6.0A	SMAJ6.0CA	AG	WG	400	6	800	6.67	7.37	10	38.8	10.3
SMAJ6.5A	SMAJ6.5CA	AK	WK	400	6.5	500	7.22	7.98	10	35.7	11.2
SMAJ7.0A	SMAJ7.0CA	AM	WM	400	7	200	7.78	8.6	10	33.3	12.0
SMAJ7.5A	SMAJ7.5CA	AP	WP	400	7.5	100	8.33	9.21	1	31.0	12.9
SMAJ8.0A	SMAJ8.0CA	AR	WR	400	8	50	8.89	9.83	1	29.4	13.6
SMAJ8.5A	SMAJ8.5CA	AT	WT	400	8.5	20	9.44	10.4	1	27.8	14.4
SMAJ9.0A	SMAJ9.0CA	AV	WV	400	9	10	10	11.1	1	26.0	15.4
SMAJ10A	SMAJ10CA	AX	WX	400	10	5	11.1	12.3	1	23.5	17.0
SMAJ11A	SMAJ11CA	AZ	WZ	400	11	1	12.2	13.5	1	22.0	18.2
SMAJ12A	SMAJ12CA	BE	XE	400	12	1	13.3	14.7	1	20.1	19.9
SMAJ13A	SMAJ13CA	BG	XG	400	13	1	14.4	15.9	1	18.6	21.5
SMAJ14A	SMAJ14CA	BK	XK	400	14	1	15.6	17.2	1	17.2	23.2
SMAJ15A	SMAJ15CA	BM	XM	400	15	1	16.7	18.5	1	16.4	24.4
SMAJ16A	SMAJ16CA	BP	XP	400	16	1	17.8	19.7	1	15.4	26.0
SMAJ17A	SMAJ17CA	BR	XR	400	17	1	18.9	20.9	1	14.5	27.6
SMAJ18A	SMAJ18CA	BT	XT	400	18	1	20	22.1	1	13.7	29.2
SMAJ20A	SMAJ20CA	BV	XV	400	20	1	22.2	24.5	1	12.3	32.4
SMAJ22A	SMAJ22CA	BX	XX	400	22	1	24.4	26.9	1	11.3	35.5
SMAJ24A	SMAJ24CA	BZ	XZ	400	24	1	26.7	29.5	1	10.3	38.9
SMAJ26A	SMAJ26CA	CE	YE	400	26	1	28.9	31.9	1	9.5	42.1
SMAJ28A	SMAJ28CA	CG	YG	400	28	1	31.1	34.4	1	8.8	45.4
SMAJ30A	SMAJ30CA	CK	YK	400	30	1	33.3	36.8	1	8.3	48.4
SMAJ33A	SMAJ33CA	CM	YM	400	33	1	36.7	40.6	1	7.5	53.3
SMAJ36A	SMAJ36CA	CP	YP	400	36	1	40	44.2	1	6.9	58.1
SMAJ40A	SMAJ40CA	CR	YR	400	40	1	44.4	49.1	1	6.2	64.5
SMAJ43A	SMAJ43CA	CT	YT	400	43	1	47.8	52.8	1	5.8	69.4
SMAJ45A	SMAJ45CA	CV	YV	400	45	1	50	55.3	1	5.5	72.7
SMAJ48A	SMAJ48CA	CX	YX	400	48	1	53.3	58.9	1	5.2	77.4
SMAJ51A	SMAJ51CA	CZ	YZ	400	51	1	56.7	62.7	1	4.9	82.4
SMAJ54A	SMAJ54CA	RE	ZE	400	54	1	60	66.3	1	4.6	87.1
SMAJ58A	SMAJ58CA	RG	ZG	400	58	1	64.4	71.2	1	4.3	93.6
SMAJ60A	SMAJ60CA	RK	ZK	400	60	1	66.7	73.7	1	4.1	96.8
SMAJ64A	SMAJ64CA	RM	ZM	400	64	1	71.1	78.6	1	3.9	103
SMAJ70A	SMAJ70CA	RP	ZP	400	70	1	77.8	86	1	3.5	113
SMAJ75A	SMAJ75CA	RR	ZR	400	75	1	83.3	92.1	1	3.3	121
SMAJ78A	SMAJ78CA	RT	ZT	400	78	1	86.7	95.8	1	3.2	126
SMAJ85A	SMAJ85CA	RV	ZV	400	85	1	94.4	104	1	2.9	137
SMAJ90A	SMAJ90CA	RX	ZX	400	90	1	100	111	1	2.7	146
SMAJ100A	SMAJ100CA	RZ	ZZ	400	100	1	111	123	1	2.5	162



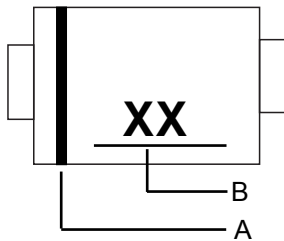
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## 400W Surface Mount Transient Voltage Suppressors

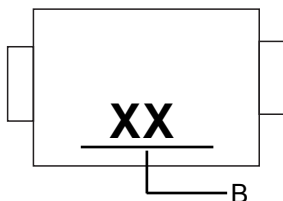
Type		Marking		Peak Pulse Power	Stand-off Voltage	Maximum Reverse Current at VR	Breakdown Voltage at IT		Test Current	Maximum Peak Pulse Current	Maximum Clamping Voltage at Ipp
Uni-Polar	Bi-Polar	Uni-Polar	Bi-Polar	PPP (W)	V(R) (V)	IR (uA)	V (BR) (V) Min.    Max.		IT (mA)	Ipp (A)	Vc (V)
SMAJ110A	SMAJ110CA	SE	VE	400	110	1	122	135	1	2.3	177
SMAJ120A	SMAJ120CA	SG	VG	400	120	1	133	147	1	2.1	193
SMAJ130A	SMAJ130CA	SK	VK	400	130	1	144	159	1	1.9	209
SMAJ150A	SMAJ150CA	SM	VM	400	150	1	167	185	1	1.6	243
SMAJ160A	SMAJ160CA	SP	VP	400	160	1	178	197	1	1.5	259
SMAJ170A	SMAJ170CA	SR	VR	400	170	1	189	209	1	1.5	275
SMAJ180A	SMAJ180CA	ST	VT	400	180	1	201	222	1	1.4	292
SMAJ200A	SMAJ200CA	SV	VV	400	200	1	224	247	1	1.2	324
SMAJ220A	SMAJ220CA	SX	VX	400	220	1	246	272	1	1.1	356
SMAJ250A	SMAJ250CA	SZ	VZ	400	250	1	279	309	1	1.0	405
SMAJ300A	SMAJ300CA	TE	UE	400	300	1	335	371	1	0.8	486
SMAJ350A	SMAJ350CA	TG	UG	400	350	1	391	432	1	0.7	567
SMAJ400A	SMAJ400CA	TK	UK	400	400	1	447	494	1	0.6	648
SMAJ440A	SMAJ440CA	TM	UM	400	440	1	492	543	1	0.6	713

### Marking For Uni-Polar



Symbol	Explanation
A	Color Band Denotes Cathode
B	Marking Code, as above sheet

### Marking For Bi-Polar



Symbol	Explanation
B	Marking Code, as above sheet



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## 400W Surface Mount Transient Voltage Suppressors

### Ratings And Characteristic Curves

Fig.1 Peak Pulse Power Rating Curve

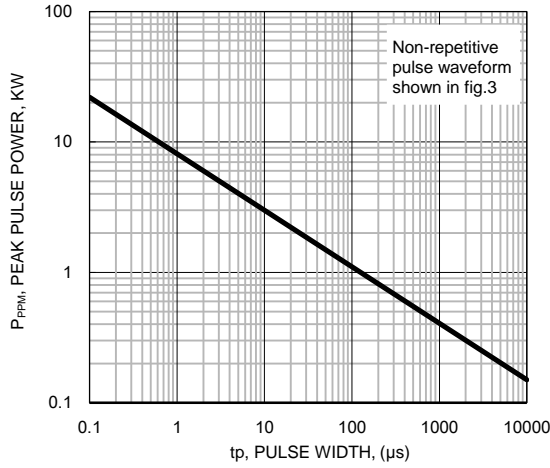


Fig.2 Pulse Derating Curve

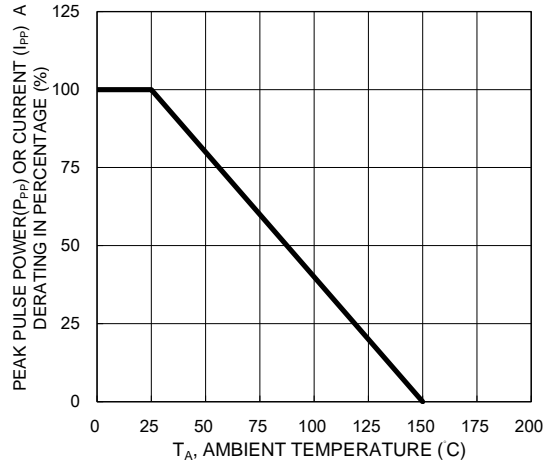


Fig.3 Claming Power Pulse Waveform

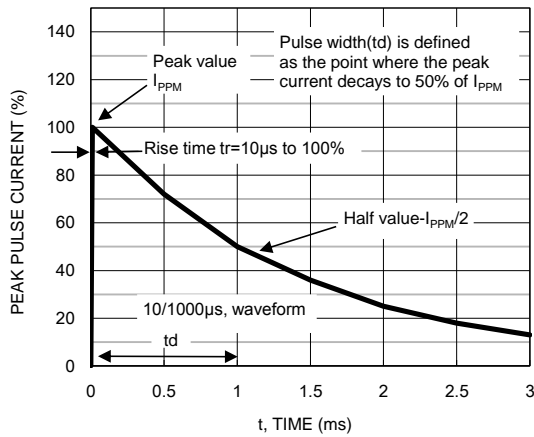


Fig.4 Maximum Non-repetitive Forward Surge Current

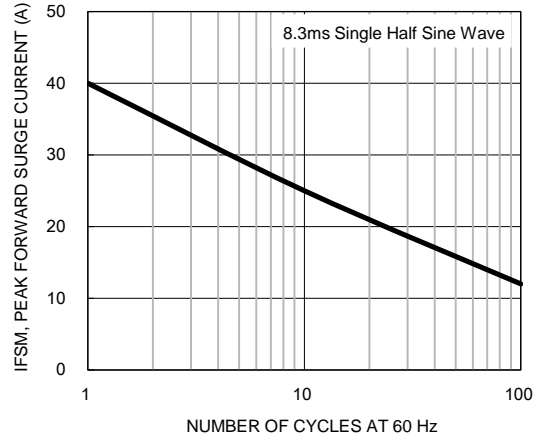
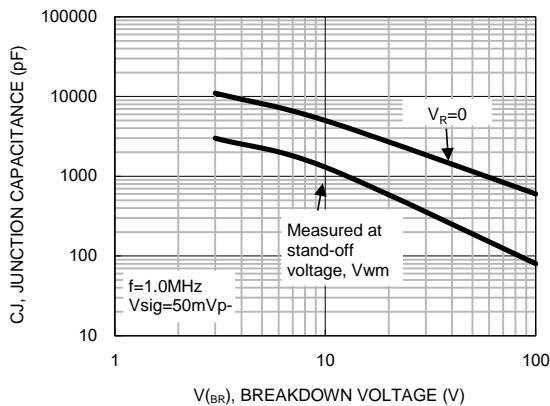


Fig.5 Typical Junction Capacitance



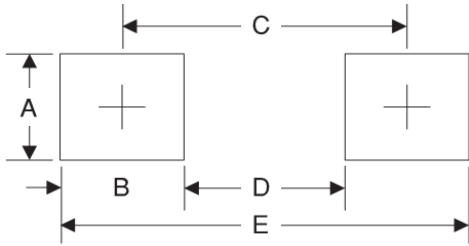


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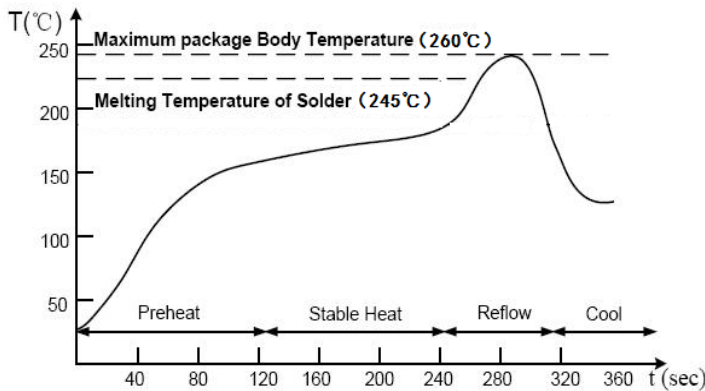
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### Suggested Pad Layout



Symbol	Unit (mm)	Unit (inch)
A	1.68	0.066
B	1.52	0.060
C	3.90	0.154
D	2.41	0.095
E	5.45	0.215

### Suggested Soldering Temperature Profile

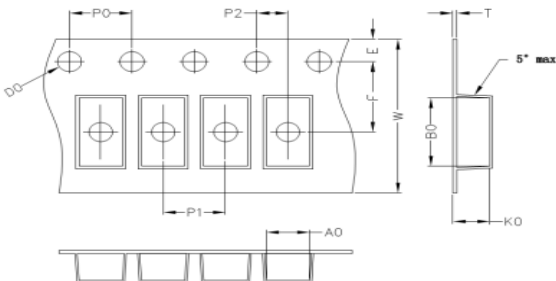


#### Note

- Recommended reflow methods: IR, vapor phase oven, hot air oven, wave solder.
- The device can be exposed to a maximum temperature of 260°C for 10 seconds.
- Devices can be cleaned using standard industry methods and solvents.
- If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

### Package Information

#### Carrier Dimension(mm)



A0	B0	K0	D0	E	F
2.80	5.30	2.36	1.55	1.75	5.50
P0	P1	P2	T	W	Tolerance
4.0	4.0	2.0	0.25	12	0.1

#### Package Specifications

Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (Kpcs)	Box Size (mm)	QTY/Box (Kpcs)	Carton Size (mm)	Q'TY/Carton (Kpcs)
SMA	11'	278	5	285	10	355*310*310	80
	13'	330	7.5	340	15	360*360*360	120