

# SMAJ5.0A ~ 188CA

## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

**Stand-off Voltage : 5.0 to 188V**

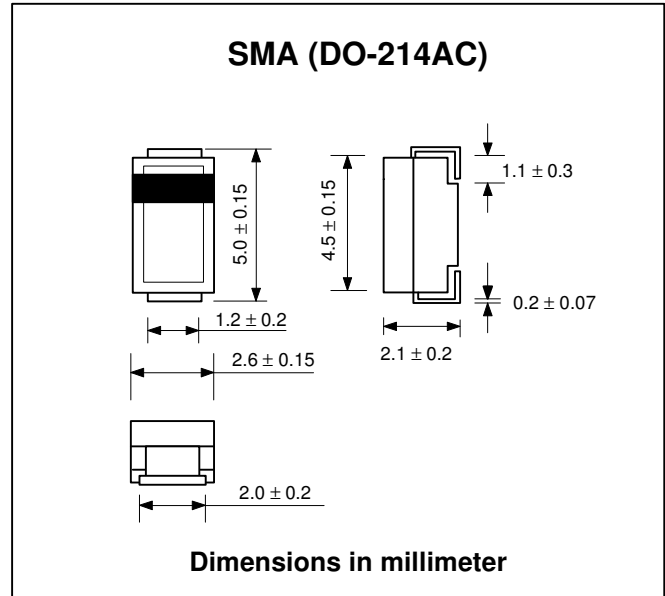
**Peak Pulse Power : 400 W**

### FEATURES :

- \* 400W surge capability at 1ms
- \* Optimized for LAN protection applications
- \* Excellent clamping capability
- \* Low zener impedance
- \* Fast response time : typically less than 1.0 ps from 0 volt to  $V_{BR(min.)}$
- \* Typical  $I_R$  less than  $1\mu A$  above 10V

### MECHANICAL DATA

- \* Case : SMA Molded plastic
- \* Epoxy : UL94V-O rate flame retardant
- \* Lead : Lead Formed for Surface Mount
- \* Polarity : Color band denotes cathode end except Bipolar.
- \* Mounting position : Any
- \* Weight : 0.064 grams



### MAXIMUM RATINGS

Rating at 25°C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Units
Peak Pulse Power Dissipation (Note1,2,5) Fig. 4	PPPM	Minimum 400	W
Peak Forward Surge Current per Fig. 5 (Note 3)	IFSM	40	A
Peak Pulse Current on 10/1000μs waveform (Note 1, Fig. 1)	IPPM	See Table	A
Steady State Power Dissipation (Note 4)	$P_{M(AV)}$	1.0	W
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	- 55 to + 150	°C

### Notes :

- (1) Non-repetitive Current pulse, per Fig. 3 and derated above  $T_a = 25^\circ C$  per Fig. 1
- (2) Mounted on  $0.2 \times 0.2$  (5.0 x 5.0 mm) copper pads to each terminal.
- (3) 8.3ms single half sine-wave duty cycle=4 pulses per minutes maximum.
- (4) Lead temperature at  $T_L=75^\circ C$
- (5) Peak pulse power waveform is 10/1000μs.



SYNSEMI SEMICONDUCTOR

## ELECTRICAL CHARACTERISTICS (Rating at 25°C ambient temperature unless otherwise specified)

Type No.		Breakdown Voltage @ $I_T^{(1)}$			Working Peak Reverse Voltage	Maximum Reverse Leakage @ $V_{WM}$	Maximum Peak Pulse Surge Current	Maximum Clamping Voltage @ $I_{PPM}$
Uni-directional	Bi-directional	$V_{BR}$ (V)		$I_T$	$V_{WM}$	$I_D$	$I_{PPM}$	$V_C$
		Min.	Max.	(mA)	(V)	( $\mu A$ )	(A)	(V)
SMAJ5.0A	SMAJ5.0CA <sup>(4)</sup>	6.40	7.07	10	5.0	800	43.5	9.2
SMAJ6.0A	SMAJ6.0CA	6.67	7.37	10	6.0	800	38.8	10.3
SMAJ6.5A	SMAJ6.5CA	7.22	7.98	10	6.5	500	35.7	11.2
SMAJ7.0A	SMAJ7.0CA	7.78	8.6	10	7.0	200	33.3	12.0
SMAJ7.5A	SMAJ7.5CA	8.33	9.21	1.0	7.5	100	31.0	12.9
SMAJ8.0A	SMAJ8.0CA	8.89	9.83	1.0	8.0	50	29.4	13.6
SMAJ8.5A	SMAJ8.5CA	9.44	10.4	1.0	8.5	10	27.8	14.4
SMAJ9.0A	SMAJ9.0CA	10.0	11.1	1.0	9.0	5.0	26.0	15.4
SMAJ10A	SMAJ10CA	11.1	12.3	1.0	10	5.0	23.5	17.0
SMAJ11A	SMAJ11CA	12.2	13.5	1.0	11	5.0	22.0	18.2
SMAJ12A	SMAJ12CA	13.3	14.7	1.0	12	5.0	20.1	19.9
SMAJ13A	SMAJ13CA	14.4	15.9	1.0	13	5.0	18.6	21.5
SMAJ14A	SMAJ14CA	15.6	17.2	1.0	14	5.0	17.2	23.2
SMAJ15A	SMAJ15CA	16.7	18.5	1.0	15	5.0	16.4	24.4
SMAJ16A	SMAJ16CA	17.8	19.7	1.0	16	5.0	15.4	26.0
SMAJ17A	SMAJ17CA	18.9	20.9	1.0	17	5.0	14.5	27.6
SMAJ18A	SMAJ18CA	20.0	22.1	1.0	18	5.0	13.7	29.2
SMAJ20A	SMAJ20CA	22.2	24.5	1.0	20	5.0	12.3	32.4
SMAJ22A	SMAJ22CA	24.4	26.9	1.0	22	5.0	11.3	35.5
SMAJ24A	SMAJ24CA	26.7	29.5	1.0	24	5.0	10.3	38.9
SMAJ26A	SMAJ26CA	28.9	31.9	1.0	26	5.0	9.5	42.1
SMAJ30A	SMAJ30CA	33.3	36.8	1.0	30	5.0	8.3	48.4
SMAJ33A	SMAJ33CA	36.7	40.6	1.0	33	5.0	7.5	53.3
SMAJ36A	SMAJ36CA	40.0	44.2	1.0	36	5.0	6.9	58.1
SMAJ40A	SMAJ40CA	44.4	49.1	1.0	40	5.0	6.2	64.5
SMAJ43A	SMAJ43CA	47.8	52.8	1.0	43	5.0	5.7	69.4
SMAJ45A	SMAJ45CA	50.0	55.3	1.0	45	5.0	5.5	72.7
SMAJ48A	SMAJ48CA	53.3	58.9	1.0	48	5.0	5.2	77.4
SMAJ51A	SMAJ51CA	56.7	62.7	1.0	51	5.0	4.9	82.4
SMAJ54A	SMAJ54CA	60.0	66.3	1.0	54	5.0	4.6	87.1
SMAJ58A	SMAJ58CA	64.4	71.2	1.0	58	5.0	4.3	93.6
SMAJ60A	SMAJ60CA	66.7	73.7	1.0	60	5.0	4.1	96.8
SMAJ64A	SMAJ64CA	71.1	78.6	1.0	64	5.0	3.9	103
SMAJ70A	SMAJ70CA	77.8	86	1.0	70	5.0	3.5	113
SMAJ75A	SMAJ75CA	83.3	92.1	1.0	75	5.0	3.3	121
SMAJ78A	SMAJ78CA	86.7	95.8	1.0	78	5.0	3.2	126
SMAJ85A	SMAJ85CA	94.4	104	1.0	85	5.0	2.2	137
SMAJ90A	SMAJ90CA	100	111	1.0	90	5.0	2.1	146
SMAJ100A	SMAJ100CA	111	123	1.0	100	5.0	1.9	162
SMAJ110A	SMAJ110CA	122	135	1.0	110	5.0	1.7	177
SMAJ120A	SMAJ120CA	133	147	1.0	120	5.0	1.6	193
SMAJ130A	SMAJ130CA	144	159	1.0	130	5.0	1.4	209
SMAJ150A	SMAJ150CA	167	185	1.0	150	5.0	1.2	243
SMAJ160A	SMAJ160CA	178	197	1.0	160	5.0	1.2	259
SMAJ170A	SMAJ170CA	189	209	1.0	170	5.0	1.09	275
SMAJ188A	SMAJ188CA	209	231	1.0	188	5.0	0.91	328

**Notes:**

- (1) Pulse test :  $t_p \leq 50$ ms.
- (2) For bidirectional use C or CA suffix.
- (3) For bi-directional types have  $V_{WM}$  of 10 Volts and less , the  $I_D$  limit is doubled
- (4) For the bi-directional SMAJ5.0CA, the maximum  $V_{BR}$  is 7.25V
- (5) "SMAJ" will be omitted in marking on the diode.

## RATING AND CHARACTERISTIC CURVES ( SMAJ5.0A - SMAJ188CA )

FIG.1 - PULSE DERATING CURVE

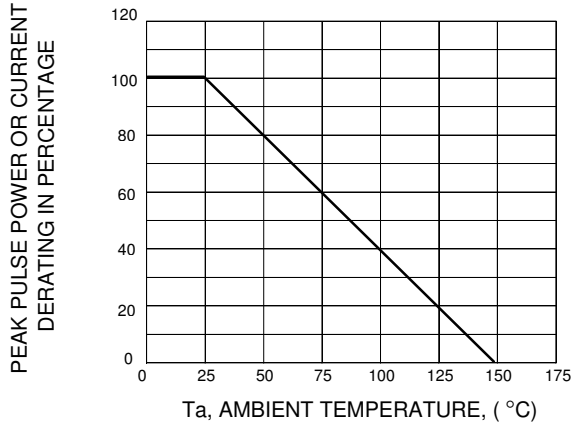


FIG.2 - TYPICAL JUNCTION CAPACITANCE

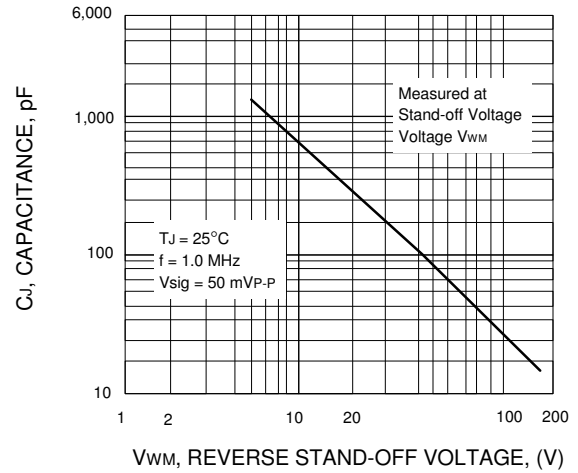


FIG.3 - PULSE WAVEFORM

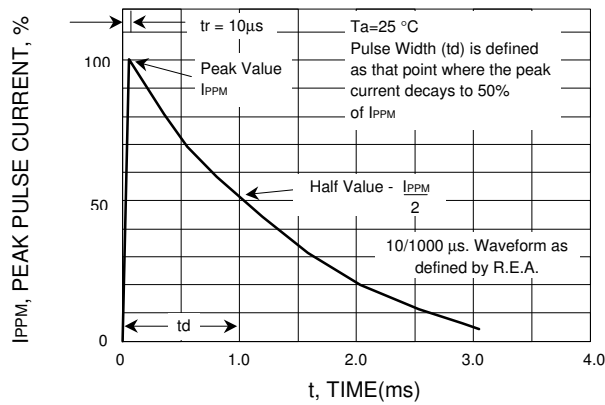


FIG.4 - PEAK PULSE POWER RATING CURVE

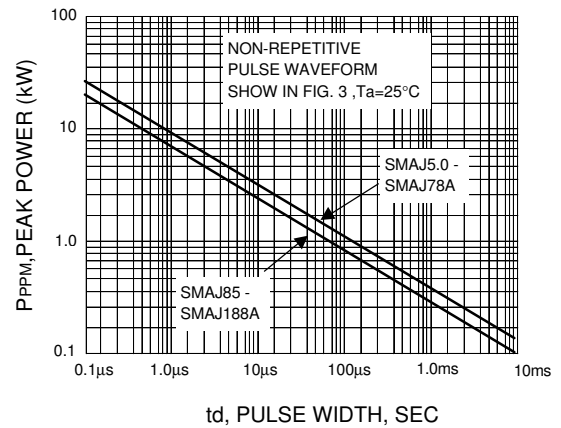


FIG.5 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

