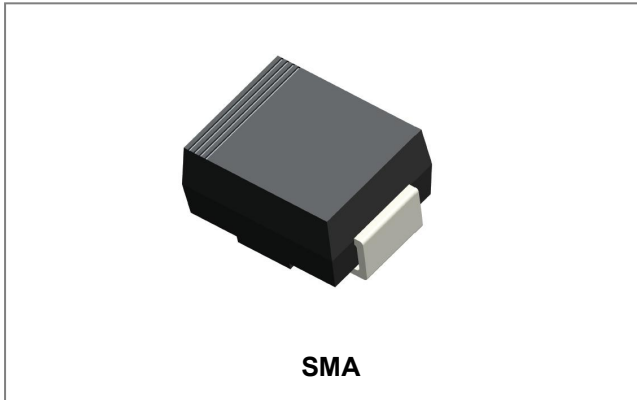


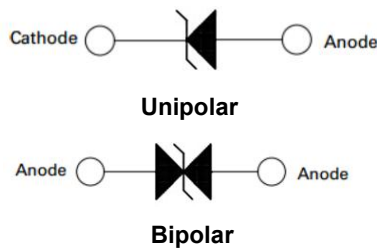
## SMAJ5.0A THRU SMAJ300CA SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR



### Features

- Glass Passivated Die Construction
- 400W Peak Pulse Power Dissipation
- 5.0V- 300V Standoff Voltage
- Uni- and Bi-Directional Versions Available
- Excellent Clamping Capability
- Fast Response Time
- Plastic Case Material has UL Flammability Classification Rating 94V-O
- ROHS Compliant
- All SMC Parts are Traceable to the Wafer Lot
- Additional testing can be offered upon request
- “-A” suffix is for Automotive qualified

### Circuit Diagram



### Mechanical Data

- Case: SMA Low Profile Molded Plastic
- Terminals: Solder Plated , Solderable per MIL-STD 750, Method 2026
- Polarity: Color band denotes cathode except Bipolar
- Mounting Position: Any
- Weight:0.064 grams(approx.)

### Maximum Ratings and Thermal Characteristics@ $T_A=25^{\circ}\text{C}$ unless otherwise specified

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at $T_A=25^{\circ}\text{C}$ by 10x1000 $\mu\text{s}$ Waveform (Fig.2)(Note 1, 2)	$P_{PPM}$	400	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave ( Fig.7),(Note 3)	$I_{FSM}$	40	A
Power Dissipation on Infinite Heat Sink at $T_A=50^{\circ}\text{C}$	$P_{M(AV)}$	3.3	W
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to 150	$^{\circ}\text{C}$
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	30	$^{\circ}\text{C/W}$
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	120	$^{\circ}\text{C/W}$

- 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<sup>2</sup> copper pads to each terminal.
  3. Measured on 8.3ms single half sine wave or equivalent square wavefor unidirectional device only.

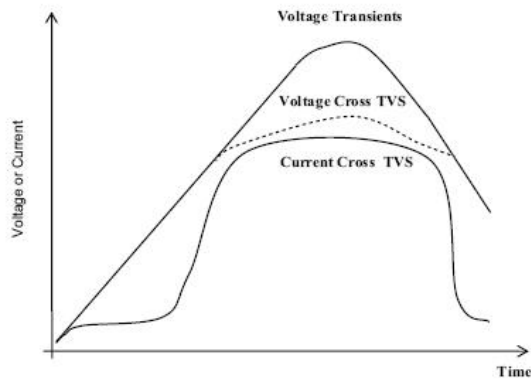
**Electrical Characteristics @  $T_A=25^\circ\text{C}$  unless otherwise specified**

UNI-POLAR	BI-POLAR	DEVICE MARKING CODE		REVERSE STANDOFF VOLTAGE $V_{RWM}$ (V)	BREAKDOWN VOLTAGE $V_{BR}$ (V) MIN. @ $I_T$	BREAKDOWN VOLTAGE $V_{BR}$ (V) MAX. @ $I_T$	TEST CURRENT ( $I_T$ ) mA	MAXIMUM CLAMPING VOLTAGE @ $I_{PP}$ $V_C$ (V)	PEAK PULSE CURRENT $I_{PP}$ (A)	REVERSE LEAKAGE @ $V_{RWM}$ $I_R$ ( $\mu\text{A}$ )
		UNI	BI							
SMAJ5.0A	SMAJ5.0CA	HE	TE	5.00	6.40	7.00	10	9.2	43.5	800
SMAJ6.0A	SMAJ6.0CA	HG	TG	6.00	6.67	7.37	10	10.3	38.8	800
SMAJ6.5A	SMAJ6.5CA	HK	TK	6.50	7.22	7.98	10	11.2	35.7	500
SMAJ7.0A	SMAJ7.0CA	HM	TM	7.00	7.78	8.60	10	12.0	33.3	200
SMAJ7.5A	SMAJ7.5CA	HP	TP	7.50	8.33	9.21	1	12.9	31.0	100
SMAJ8.0A	SMAJ8.0CA	HR	TR	8.00	8.89	9.83	1	13.6	29.4	50
SMAJ8.5A	SMAJ8.5CA	HT	TT	8.50	9.44	10.40	1	14.4	27.8	20
SMAJ9.0A	SMAJ9.0CA	HV	TV	9.00	10.00	11.10	1	15.4	26.0	10
SMAJ10A	SMAJ10CA	HX	TX	10.00	11.10	12.30	1	17.0	23.5	5
SMAJ11A	SMAJ11CA	HZ	TZ	11.00	12.20	13.50	1	18.2	22.0	5
SMAJ12A	SMAJ12CA	IE	UE	12.00	13.30	14.70	1	19.9	20.1	5
SMAJ13A	SMAJ13CA	IG	UG	13.00	14.40	15.90	1	21.5	18.6	5
SMAJ14A	SMAJ14CA	IK	UK	14.00	15.60	17.20	1	23.2	17.2	5
SMAJ15A	SMAJ15CA	IM	UM	15.00	16.70	18.50	1	24.4	16.4	5
SMAJ16A	SMAJ16CA	IP	UP	16.00	17.80	19.70	1	26.0	15.4	5
SMAJ17A	SMAJ17CA	IR	UR	17.00	18.90	20.90	1	27.6	14.5	5
SMAJ18A	SMAJ18CA	IT	UT	18.00	20.00	22.10	1	29.2	13.7	5
SMAJ20A	SMAJ20CA	IV	UV	20.00	22.20	24.50	1	32.4	12.3	5
SMAJ22A	SMAJ22CA	IX	UX	22.00	24.40	26.90	1	35.5	11.3	5
SMAJ24A	SMAJ24CA	IZ	UZ	24.00	26.70	29.50	1	38.9	10.3	5
SMAJ26A	SMAJ26CA	JE	VE	26.00	28.90	31.90	1	42.1	9.5	5
SMAJ28A	SMAJ28CA	JG	VG	28.00	31.10	34.40	1	45.4	8.8	5
SMAJ30A	SMAJ30CA	JK	VK	30.00	33.30	36.80	1	48.4	8.3	5
SMAJ33A	SMAJ33CA	JM	VM	33.00	36.70	40.60	1	53.3	7.5	5
SMAJ36A	SMAJ36CA	JP	VP	36.00	40.00	44.20	1	58.1	6.9	5
SMAJ40A	SMAJ40CA	JR	VR	40.00	44.40	49.10	1	64.5	6.2	5
SMAJ43A	SMAJ43CA	JT	VT	43.00	47.80	52.80	1	69.4	5.8	5
SMAJ45A	SMAJ45CA	JV	VV	45.00	50.00	55.30	1	72.7	5.5	5
SMAJ48A	SMAJ48CA	JX	VX	48.00	53.30	58.90	1	77.4	5.2	5
SMAJ51A	SMAJ51CA	JZ	VZ	51.00	56.70	62.70	1	82.4	4.9	5
SMAJ54A	SMAJ54CA	RE	WE	54.00	60.00	66.30	1	87.1	4.6	5
SMAJ58A	SMAJ58CA	RG	WG	58.00	64.40	71.20	1	93.6	4.3	5
SMAJ60A	SMAJ60CA	RK	WK	60.00	66.70	73.70	1	96.8	4.1	5
SMAJ64A	SMAJ64CA	RM	WM	64.00	71.10	78.60	1	103.0	3.9	5
SMAJ70A	SMAJ70CA	RP	WP	70.00	77.80	86.00	1	113.0	3.5	5
SMAJ75A	SMAJ75CA	RR	WR	75.00	83.30	92.10	1	121.0	3.3	5
SMAJ78A	SMAJ78CA	RT	WT	78.00	86.70	95.80	1	126.0	3.2	5
SMAJ85A	SMAJ85CA	RV	WV	85.00	94.40	104.00	1	137.0	2.9	5
SMAJ90A	SMAJ90CA	RX	WX	90.00	100.00	111.00	1	146	2.7	5
SMAJ100A	SMAJ100CA	RZ	WZ	100.00	111.00	123.00	1	162	2.5	5
SMAJ110A	SMAJ110CA	SE	XE	110.00	122.00	135.00	1	177	2.3	5
SMAJ120A	SMAJ120CA	SG	XG	120.00	133.00	147.00	1	193	2.1	5
SMAJ130A	SMAJ130CA	SK	XK	130.00	144.00	159.00	1	209	1.9	5
SMAJ150A	SMAJ150CA	SM	XM	150.00	167.00	185.00	1	243	1.6	5
SMAJ160A	SMAJ160CA	SP	XP	160.00	178.00	197.00	1	259	1.5	5
SMAJ170A	SMAJ170CA	SR	XR	170.00	189.00	209.00	1	275	1.5	5
SMAJ180A	SMAJ180CA	ST	XT	180.00	201.00	222.00	1	292	1.4	5
SMAJ220A	SMAJ220CA	SX	XX	220.00	246.00	272.00	1	356	1.1	5
SMAJ300A	SMAJ300CA	TE	UE	300.00	335.00	371.00	1	486	0.8	5

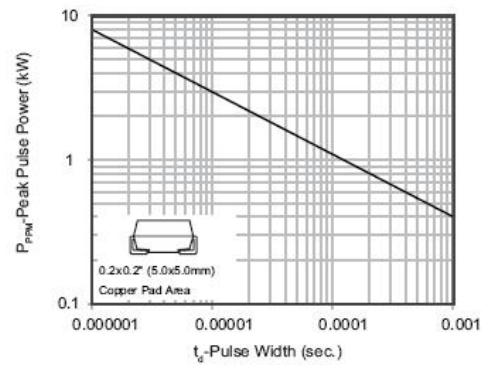
For bidirectional type having VRWM of 10 volts and less, the IR limit is double.  
For parts without A (VBR is + 10% and VC is 5% higher than with A parts).

**Ratings and Characteristics Curves**

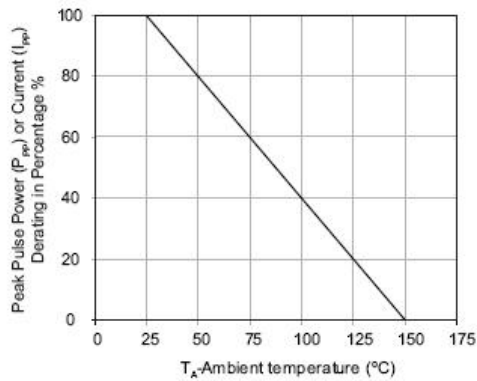
**Figure 1 - TVS Transients Clamping Waveform**



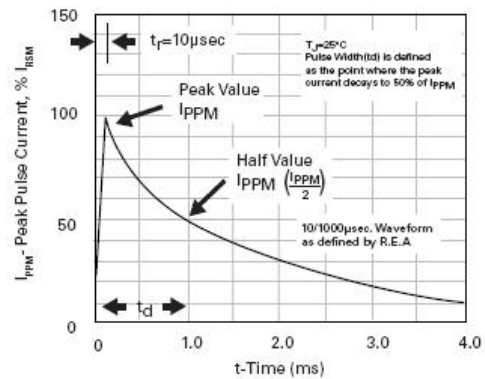
**Figure 2 - Peak Pulse Power Rating Curve**



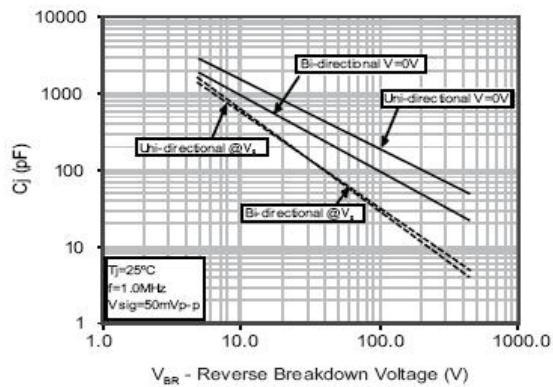
**Figure 3 - Pulse Derating Curve**



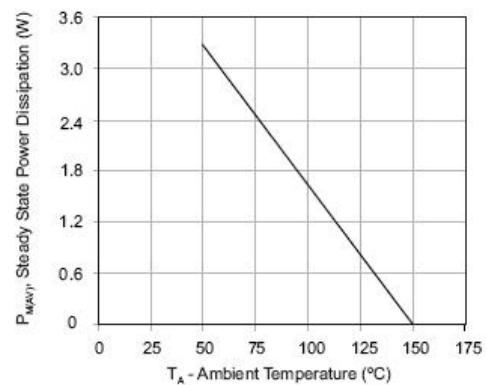
**Figure 4 - Pulse Waveform**



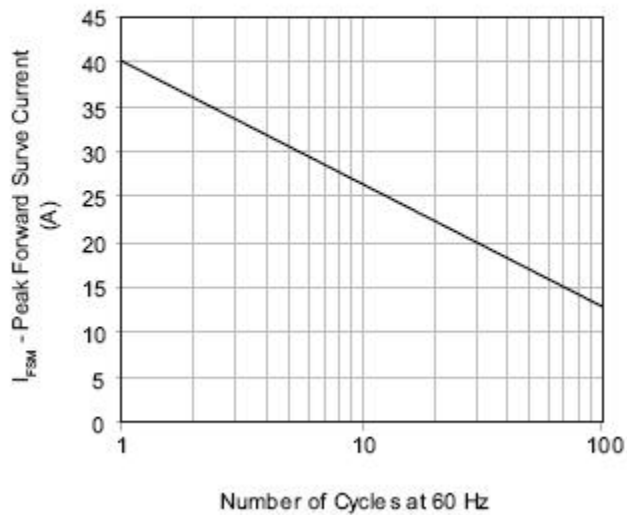
**Figure 5 - Typical Junction Capacitance**



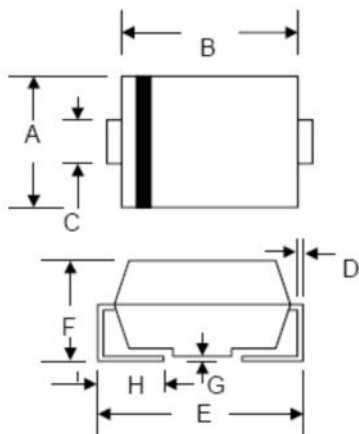
**Figure 6 - Steady State Power Dissipation Derating Curve**



**Figure 7 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only**



**Mechanical Dimensions SMA**



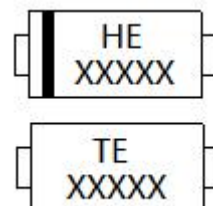
SYMBOL	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.40	2.84	0.094	0.112
B	3.99	4.75	0.157	0.187
C	1.05	1.70	0.041	0.067
D	0.15	0.51	0.006	0.020
E	4.80	5.66	0.189	0.223
F	1.90	2.95	0.075	0.116
G	0.05	0.203	0.002	0.008
H	0.76	1.52	0.030	0.600

**Ordering Information**

Device	Package	Shipping
SMAJ5.0A THRU SMAJ300CA	SMA (Pb-Free)	5000pcs / reel

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification.

**Marking Diagram**

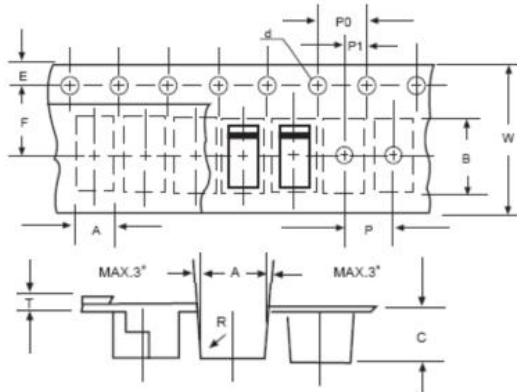


Where XXXXX is YYWWL

- HE/TE = Marking code
- YY = Year
- WW = Week
- L = Lot Number

**Cautions:** Molding resin  
Epoxy resin UL:94V-0

**Carrier Tape Specification SMA**



SYMBOL	Millimeters	
	Min.	Max.
A	2.97	3.17
B	5.70	5.90
C	2.32	2.52
d	1.40	1.60
E	1.40	1.60
F	5.60	5.70
P	3.90	4.10
P0	3.90	4.10
P1	1.90	2.10
T	0.25	0.35
W	11.80	12.20

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