Technical Data
Data Sheet N0223, Rev. B

Automotive qualified

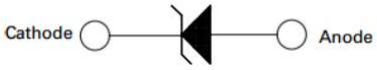
SMAJ5.0A THRU SMAJ300CA
SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

SMA

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



Unipolar

Bipolar

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°C unless otherwise specified

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at T_A=25°C by 10x1000μs 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°C	$P_{M(AV)}$	3.3	W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 to 150	°C
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	30	°C/W
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	120	°C/W

Notes: 1. Non-repetitive current pulse, per Fig. 3 and derated above T_A = 25°C per Fig. 2.
2. Mounted on 5.0mm² copper pads to each terminal.
3. Measured on 8.3ms single half sine wave or equivalent square wavefor unidirectional device only.

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Electrical Characteristics@T_A=25° C unless otherwise specified

UNI-POLAR	BI-POLAR	DEVICE MARKING CODE		REVERSE STAND-OFF VOLTAGE VRWM (V)	BREAKDOWN VOLTAGE VBR (V) MIN. @IT	BREAKDOWN VOLTAGE VBR (V) MAX. @IT	TEST CURRENT IT(MA)	MAXMUM CLAMPING VOLTAGE @IPP VC(V)	PEAK PULSE CURRENT IPP(A)	REVERSE LEAKAGE @VRWM IR(uA)
		UNI	BI							
SMAJ5.0A	SMAJ5.0CA	HE	TE	5	6.4	7	10	9.2	43.5	800
SMAJ6.0A	SMAJ6.0CA	HG	TG	6	6.67	7.37	10	10.3	38.8	800
SMAJ6.5A	SMAJ6.5CA	HK	TK	6.5	7.22	7.98	10	11.2	35.7	500
SMAJ7.0A	SMAJ7.0CA	HM	TM	7	7.78	8.6	10	12	33.3	200
SMAJ7.5A	SMAJ7.5CA	HP	TP	7.5	8.33	9.21	1	12.9	31	100
SMAJ8.0A	SMAJ8.0CA	HR	TR	8	8.89	9.83	1	13.6	29.4	50
SMAJ8.5A	SMAJ8.5CA	HT	TT	8.5	9.44	10.4	1	14.4	27.8	20
SMAJ9.0A	SMAJ9.0CA	HV	TV	9	10	11.1	1	15.4	26	10
SMAJ10A	SMAJ10CA	HX	TX	10	11.1	12.3	1	17	23.5	5
SMAJ11A	SMAJ11CA	HZ	TZ	11	12.2	13.5	1	18.2	22	5
SMAJ12A	SMAJ12CA	IE	UE	12	13.3	14.7	1	19.9	20.1	5
SMAJ13A	SMAJ13CA	IG	UG	13	14.4	15.9	1	21.5	18.6	5
SMAJ14A	SMAJ14CA	IK	UK	14	15.6	17.2	1	23.2	17.2	5
SMAJ15A	SMAJ15CA	IM	UM	15	16.7	18.5	1	24.4	16.4	5
SMAJ16A	SMAJ16CA	IP	UP	16	17.8	19.7	1	26	15.4	5
SMAJ17A	SMAJ17CA	IR	UR	17	18.9	20.9	1	27.6	14.5	5
SMAJ18A	SMAJ18CA	IT	UT	18	20	22.1	1	29.2	13.7	5
SMAJ20A	SMAJ20CA	IV	UV	20	22.2	24.5	1	32.4	12.3	5
SMAJ22A	SMAJ22CA	IX	UX	22	24.4	26.9	1	35.5	11.3	5
SMAJ24A	SMAJ24CA	IZ	UZ	24	26.7	29.5	1	38.9	10.3	5
SMAJ26A	SMAJ26CA	JE	VE	26	28.9	31.9	1	42.1	9.5	5
SMAJ28A	SMAJ28CA	JG	VG	28	31.1	34.4	1	45.4	8.8	5
SMAJ30A	SMAJ30CA	JK	VK	30	33.3	36.8	1	48.4	8.3	5
SMAJ33A	SMAJ33CA	JM	VM	33	36.7	40.6	1	53.3	7.5	5
SMAJ36A	SMAJ36CA	JP	VP	36	40	44.2	1	58.1	6.9	5
SMAJ40A	SMAJ40CA	JR	VR	40	44.4	49.1	1	64.5	6.2	5
SMAJ43A	SMAJ43CA	JT	VT	43	47.8	52.8	1	69.4	5.8	5
SMAJ45A	SMAJ45CA	JV	VV	45	50	55.3	1	72.7	5.5	5
SMAJ48A	SMAJ48CA	JX	VX	48	53.3	58.9	1	77.4	5.2	5
SMAJ51A	SMAJ51CA	JZ	VZ	51	56.7	62.7	1	82.4	4.9	5
SMAJ54A	SMAJ54CA	RE	WE	54	60	66.3	1	87.1	4.6	5
SMAJ58A	SMAJ58CA	RG	WG	58	64.4	71.2	1	93.6	4.3	5
SMAJ60A	SMAJ60CA	RK	WK	60	66.7	73.7	1	96.8	4.1	5
SMAJ64A	SMAJ64CA	RM	WM	64	71.1	78.6	1	103	3.9	5
SMAJ70A	SMAJ70CA	RP	WP	70	77.8	86	1	113	3.5	5
SMAJ75A	SMAJ75CA	RR	WR	75	83.3	92.1	1	121	3.3	5
SMAJ78A	SMAJ78CA	RT	WT	78	86.7	95.8	1	126	3.2	5
SMAJ85A	SMAJ85CA	RV	WV	85	94.4	104	1	137	2.9	5
SMAJ90A	SMAJ90CA	RX	WX	90	100	111	1	146	2.7	5
SMAJ100A	SMAJ100CA	RZ	WZ	100	111	123	1	162	2.5	5
SMAJ110A	SMAJ110CA	SE	XE	110	122	135	1	177	2.3	5
SMAJ120A	SMAJ120CA	SG	XG	120	133	147	1	193	2.1	5
SMAJ130A	SMAJ130CA	SK	XK	130	144	159	1	209	1.9	5
SMAJ150A	SMAJ150CA	SM	XM	150	167	185	1	243	1.6	5
SMAJ160A	SMAJ160CA	SP	XP	160	178	197	1	259	1.5	5
SMAJ170A	SMAJ170CA	SR	XR	170	189	209	1	275	1.5	5
SMAJ180A	SMAJ180CA	ST	XT	180	201	222	1	292	1.4	5
SMAJ220A	SMAJ220CA	SX	XX	220	246	272	1	356	1.1	5
SMAJ300A	SMAJ300CA	TE	UE	300	335	371	1	486	0.8	5

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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

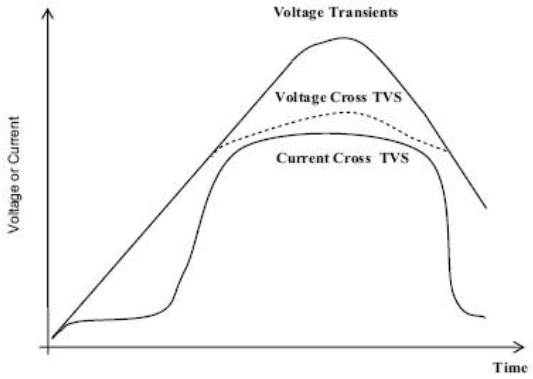


Figure 2 - Peak Pulse Power Rating Curve

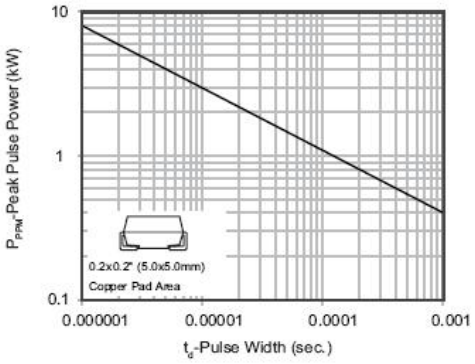


Figure 3 - Pulse Derating Curve

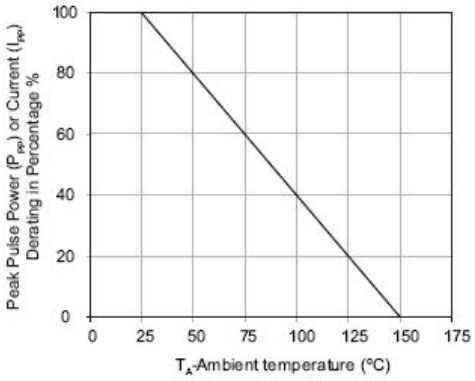


Figure 4 - Pulse Waveform

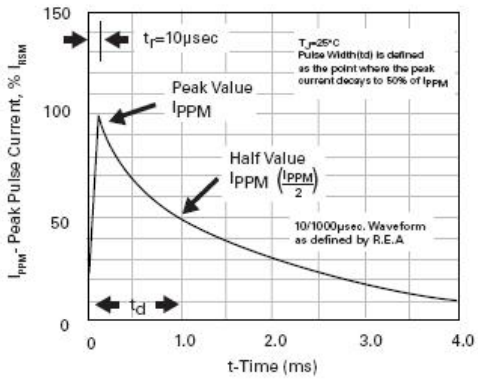


Figure 5 - Typical Junction Capacitance

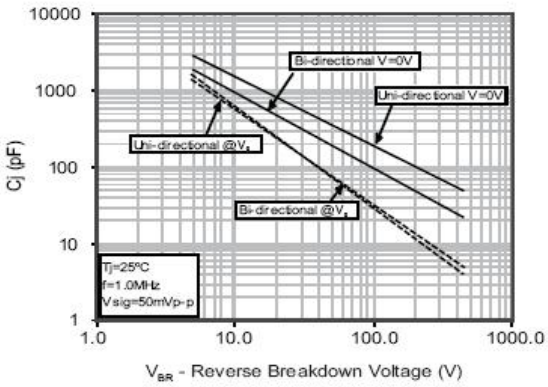


Figure 6 - Steady State Power Dissipation Derating Curve

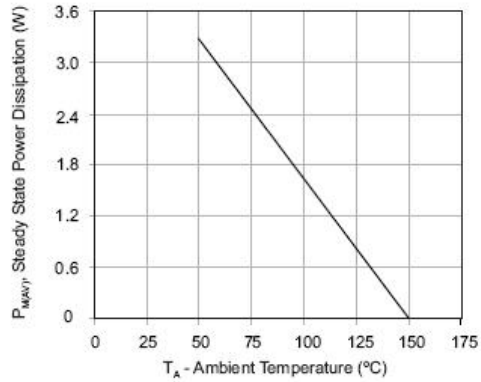
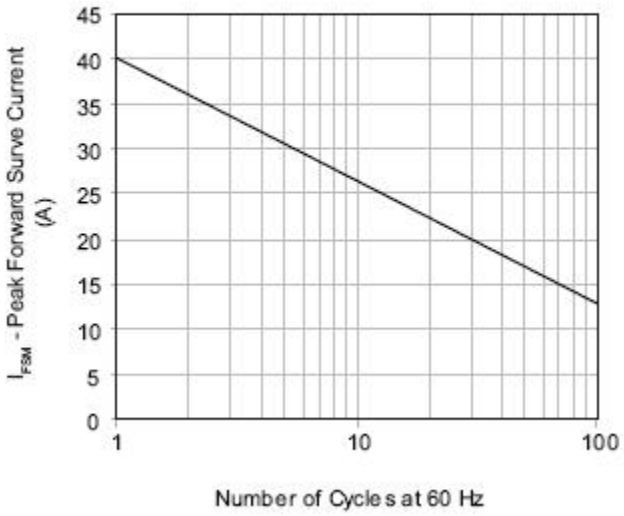
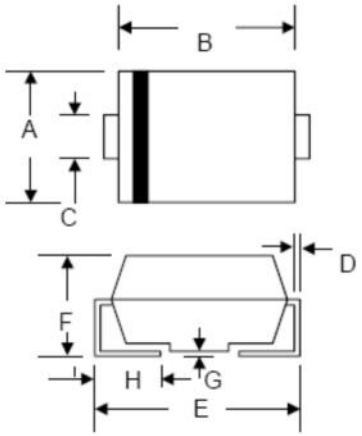


Figure 7 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



Mechanical Dimensions SMA



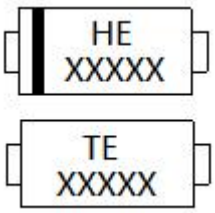
SYMBOL	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.40	2.84	0.094	0.112
B	3.99	4.75	0.157	0.187
C	1.05	1.70	0.041	0.067
D	0.15	0.51	0.006	0.020
E	4.80	5.66	0.189	0.223
F	1.90	2.95	0.075	0.116
G	0.05	0.203	0.002	0.008
H	0.76	1.52	0.030	0.600

Ordering Information

Device	Package	Shipping
SMAJ5.0A THRU SMAJ300CA	SMA (Pb-Free)	5000pcs / reel
SMAJ5.0ATR THRU SMAJ300CATR	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

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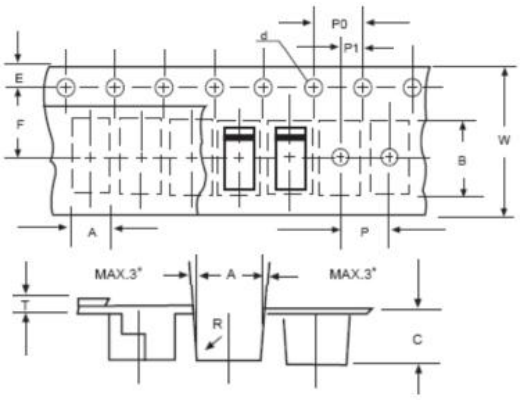
Carrier Tape Specification SMA



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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