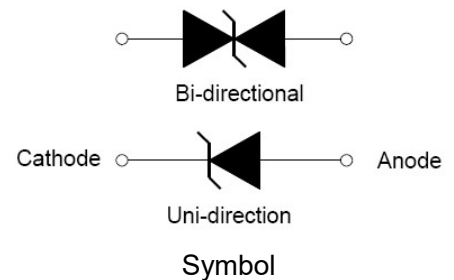


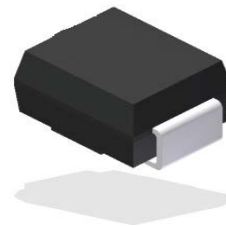
Features

- Voltage Range 3.3V - 440V
- 400W Peak Pulse Power Dissipation
- For surface mounted applications
- Reliable low cost construction utilizing molded plastic technique
- Response Time is Typically < 1 ns
- Uni-direction, less than 5.0ns for Bi-direction, from 0 Volts to BV min
- ESD Rating of above 16 kV per Human Body Model
- ESD Rating of above 30 kV (Contact Discharge) per IEC61000-4-2
- EFT (Electrical Fast Transients) Rating of 40 A per IEC61000-4-4
- Plastic material has UL flammability classification 94V-0
- Typical IR less than 1uA above 10V
- Meets MSL 1 Requirements
- Solid-state silicon avalanche technology
- ROHS compliant



Ordering Information		
Device	Qty per Reel	Reel Size
SMAJxxAX(CAX)	2000	7 Inch
	5000	13 Inch

“xx” = Working Peak Reverse Voltage



SMA

Maximum Ratings and Electrical Characteristics			
Characteristics	Symbols	Value	Unit
Peak Power Dissipation At $T_j = 25^\circ\text{C}$, $T_p = 1\text{ms}$ (Note 1,2)	P_{PK}	400	W
Peak Forward Surge Current 8.3ms single half sine-wave super	I_{FSM}	40	A
Lead Soldering Temperature	T_L	260 (10 sec.)	$^\circ\text{C}$
Operating Temperature Range	T_j	-55 to +155	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to +175	$^\circ\text{C}$

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. Non-repetitive current pulse, per fig. 4 and derated above $T_A = 25^\circ\text{C}$ per fig.1.
2. Thermal Resistance junction to Lead
3. 8.3ms single half-sine wave duty cycle= 4 pulses maximum per minute (unidirectional units only).
4. Ratings at 25°C ambient temperature unless otherwise specified.
5. Single phase, half wave, 60Hz, resistive or inductive load.
6. For Capacitive Load, Derate Current By 20%

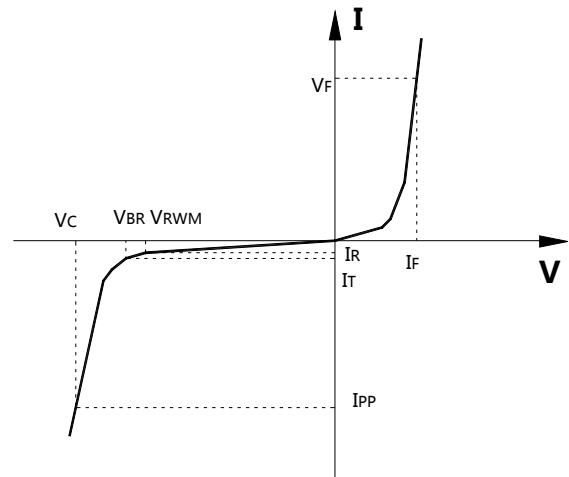
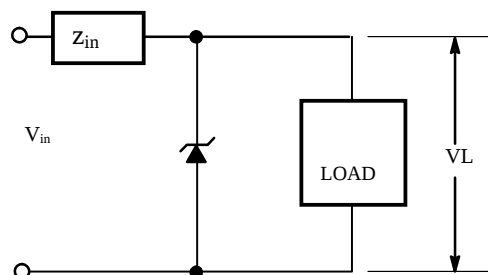
Electrical Characteristics (Tamb=25℃ Unless Otherwise Specified)

SMAJ PART NUMBER		MARKING CODE		VRWM	VBR @ IT (V)		IT	IR @ VRWM	VC(Max)	IPP(Max)
Uni-polar	Bi-polar	Uni	Bi	(V)	Min	Max	(mA)	(uA)	(V)	(A)
SMAJ3.3AX	SMAJ3.3CAX	/	/	3.3	4.2	6.5	1	800	8.7	47.6
SMAJ5.0AX	SMAJ5.0CAX	HE	TE	5	6.4	7.35	10	800	9.2	43.5
SMAJ6.0AX	SMAJ6.0CAX	HG	TG	6	6.67	7.89	10	800	10.3	38.8
SMAJ6.5AX	SMAJ6.5CAX	HK	TK	6.5	7.22	8.3	10	500	11.2	35.7
SMAJ7.0AX	SMAJ7.0CAX	HM	TM	7	7.78	8.95	10	200	12	33.3
SMAJ7.5AX	SMAJ7.5CAX	HP	TP	7.5	8.33	9.58	1	100	12.9	31
SMAJ8.0AX	SMAJ8.0CAX	HR	TR	8	8.89	10.23	1	50	13.6	29.4
SMAJ8.5AX	SMAJ8.5CAX	HT	TT	8.5	9.44	10.82	1	20	14.4	27.8
SMAJ9.0AX	SMAJ9.0CAX	HV	TV	9	10	11.5	1	10	15.4	26
SMAJ10AX	SMAJ10CAX	HX	TX	10	11.1	12.8	1	5	17	23.5
SMAJ11AX	SMAJ11CAX	HZ	TZ	11	12.2	14	1	5	18.2	22
SMAJ12AX	SMAJ12CAX	IE	UE	12	13.3	15.3	1	5	19.9	20.1
SMAJ13AX	SMAJ13CAX	IG	UG	13	14.4	16.5	1	5	21.5	18.6
SMAJ14AX	SMAJ14CAX	IK	UK	14	15.6	17.9	1	5	23.2	17.2
SMAJ15AX	SMAJ15CAX	IM	UM	15	16.7	19.2	1	5	24.4	16.4
SMAJ16AX	SMAJ16CAX	IP	UP	16	17.8	20.5	1	5	26	15.4
SMAJ17AX	SMAJ17CAX	IR	UR	17	18.9	21.7	1	5	27.6	14.5
SMAJ18AX	SMAJ18CAX	IT	UT	18	20	23.3	1	5	29.2	13.7
SMAJ20AX	SMAJ20CAX	IV	UV	20	22.2	25.5	1	5	32.4	12.3
SMAJ22AX	SMAJ22CAX	IX	UX	22	24.4	28	1	5	35.5	11.3
SMAJ24AX	SMAJ24CAX	IZ	UZ	24	26.7	30.7	1	5	38.9	10.3
SMAJ26AX	SMAJ26CAX	JE	VE	26	28.9	33.2	1	5	42.1	9.5
SMAJ28AX	SMAJ28CAX	JG	VG	28	31.1	35.8	1	5	45.4	8.8
SMAJ30AX	SMAJ30CAX	JK	VK	30	33.3	38.3	1	5	48.4	8.3
SMAJ33AX	SMAJ33CAX	JM	VM	33	36.7	42.2	1	5	53.3	7.5
SMAJ36AX	SMAJ36CAX	JP	VP	36	40	46	1	5	58.1	6.9
SMAJ40AX	SMAJ40CAX	JR	VR	40	44.4	51.1	1	5	64.5	6.2
SMAJ43AX	SMAJ43CAX	JT	VT	43	47.8	54.9	1	5	69.4	5.8
SMAJ45AX	SMAJ45CAX	JV	VV	45	50	57.5	1	5	72.7	5.5
SMAJ48AX	SMAJ48CAX	JX	VX	48	53.3	61.3	1	5	77.4	5.2
SMAJ51AX	SMAJ51CAX	JZ	VZ	51	56.7	65.2	1	5	82.4	4.9
SMAJ54AX	SMAJ54CAX	RE	WE	54	60	69	1	5	87.1	4.6
SMAJ58AX	SMAJ58CAX	RG	WG	58	64.4	74.1	1	5	93.6	4.3
SMAJ60AX	SMAJ60CAX	RK	WK	60	66.7	76.7	1	5	96.8	4.1
SMAJ64AX	SMAJ64CAX	RM	WM	64	71.1	81.8	1	5	103	3.9
SMAJ70AX	SMAJ70CAX	RP	WP	70	77.8	89.5	1	5	113	3.5
SMAJ75AX	SMAJ75CAX	RR	WR	75	83	95.8	1	5	121	3.3
SMAJ78AX	SMAJ78CAX	RT	WT	78	86	99.7	1	5	126	3.2
SMAJ85AX	SMAJ85CAX	RV	WV	85	94	108.2	1	5	137	2.9

Electrical Characteristics ($T_{amb}=25^{\circ}\text{C}$ Unless Otherwise Specified)

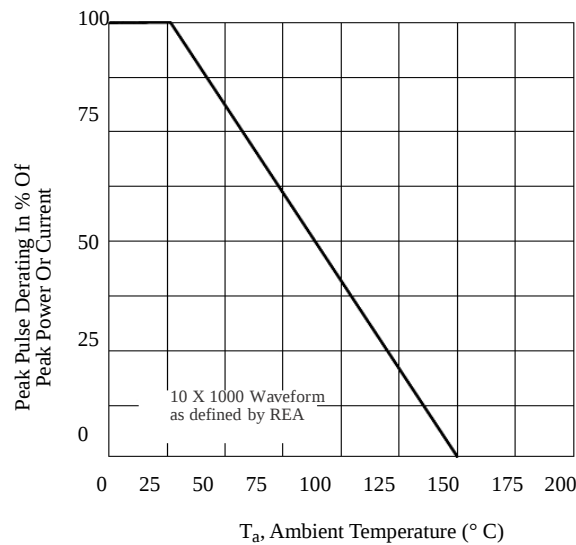
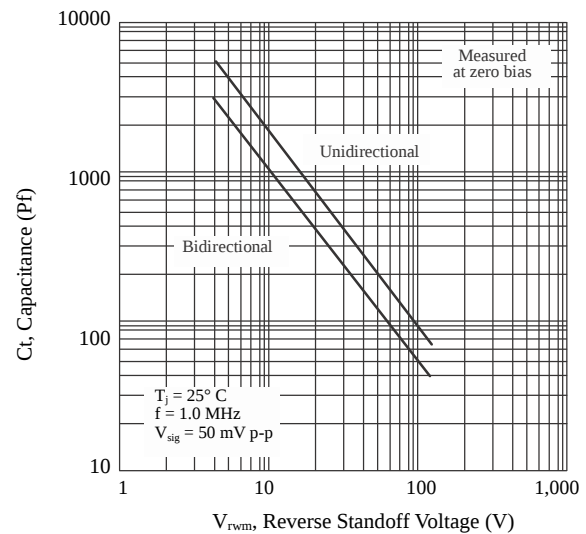
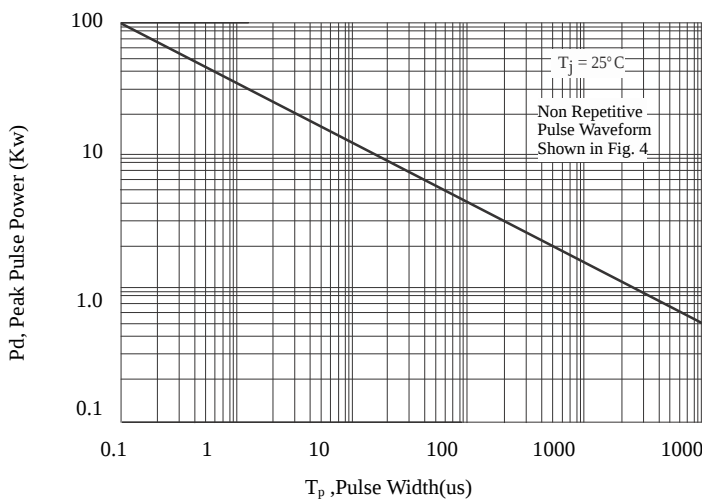
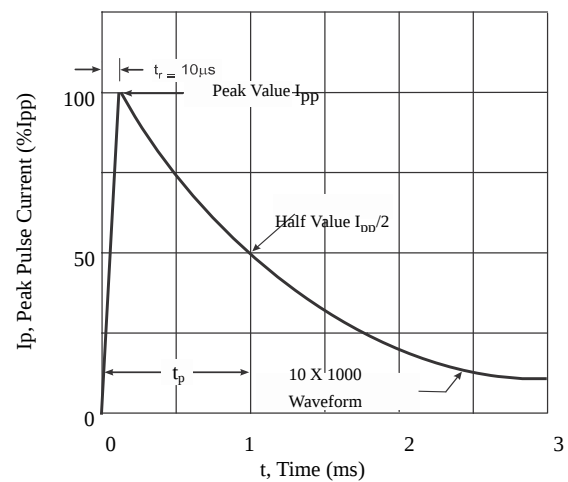
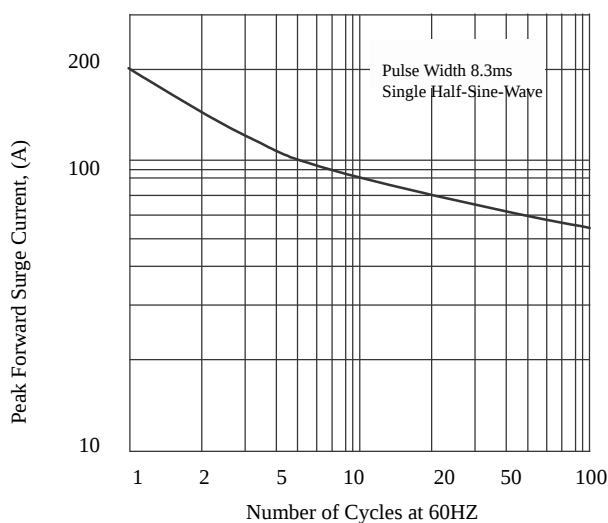
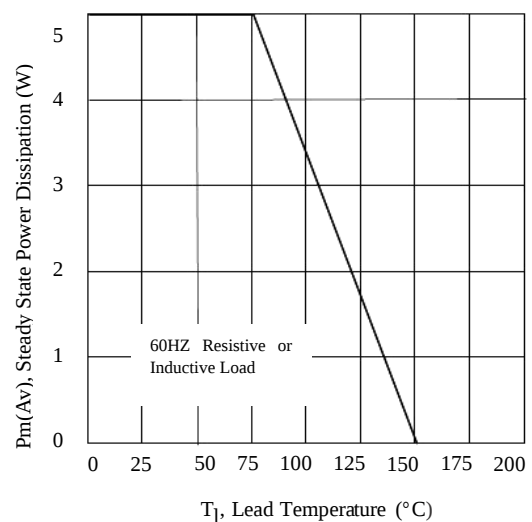
SMAJ PART NUMBER		MARKING CODE		VRWM	VBR @ IT (V)		IT	IR @ VRWM	VC(Max)	IPP(Max)
Uni-polar	Bi-polar	Uni	Bi	(V)	Min	Max	(mA)	(uA)	(V)	(A)
SMAJ90AX	SMAJ90CAX	RX	WX	90	100	115.5	1	5	146	2.7
SMAJ100AX	SMAJ100CAX	RZ	WZ	100	111	128	1	5	162	2.5
SMAJ110AX	SMAJ110CAX	SE	XE	110	122	140.5	1	5	177	2.3
SMAJ120AX	SMAJ120CAX	SG	XG	120	133	153	1	5	193	2.1
SMAJ130AX	SMAJ130CAX	SK	XK	130	144	165.5	1	5	209	1.9
SMAJ150AX	SMAJ150CAX	SM	XM	150	167	192.5	1	5	243	1.6
SMAJ160AX	SMAJ160CAX	SP	XP	160	178	205	1	5	259	1.5
SMAJ170AX	SMAJ170CAX	SR	XR	170	189	217.5	1	5	275	1.5
SMAJ180AX	SMAJ180CAX	ST	XT	180	200	230.4	1	5	290	1.4
SMAJ190AX	SMAJ190CAX	SV	XV	190	211	243.2	1	5	306	1.3
SMAJ200AX	SMAJ200CAX	SX	XX	200	222	256	1	5	322	1.2
SMAJ210AX	SMAJ210CAX	SZ	XZ	210	233	268.8	1	5	339	1.2
SMAJ220AX	SMAJ220CAX	ZE	YE	220	244	281.6	1	5	355	1.1
SMAJ250AX	SMAJ250CAX	ZG	YG	250	278	309	1	5	403	1
SMAJ300AX	SMAJ300CAX	ZK	YK	300	333	371	1	5	484	0.8
SMAJ350AX	SMAJ350CAX	ZM	YM	350	389	432	1	5	565	0.7
SMAJ400AX	SMAJ400CAX	ZP	YP	400	444	494	1	5	645	0.6
SMAJ440AX	SMAJ440CAX	ZR	YR	440	489	543	1	5	710	0.6

Symbol	Parameter
V_{RWM}	Working Peak Reverse Voltage
V_{BR}	Breakdown Voltage @ IT
V_C	Clamping Voltage @ IPP
I_T	Test Current
I_R	Leakage current at VRWM
I_{PP}	Peak pulse current


Typical Protection Circuit


Typical Electrical Characteristics Applications

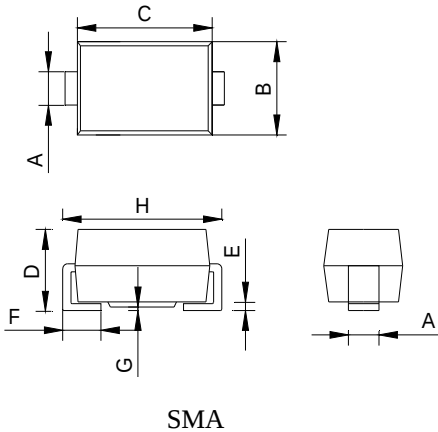
Rating and Characteristics Curves


Fig. 1 Pulse Derating Curve

Fig. 2 Typical Total Capacitance

Fig.3 Pulse Rating Curve

Fig. 4 Pulse Waveform

Fig. 5, Maximum Non-Repetitive Surge Current

Fig. 6 Steady State Power Derating Curve

Package Information

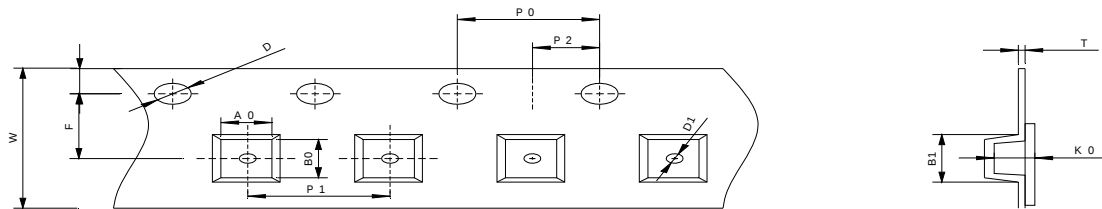
Mechanical Data

- Case: SMA
- Case Material: Molded Plastic. UL Flammability
- Classification Rating 94V-0
- Polarity Indicator: Cathode Band (Note: Bi-directional devices have no polarity indicator.)
- Weight: 0.064 grams (approximate)



DIM	Millimeters			Inches		
	Min	Nom	Max	Min	Nom	Max
A	1.25	1.45	1.65	0.049	0.057	0.065
B	2.40	2.67	2.79	0.095	0.105	0.110
C	3.39	3.95	4.60	0.133	0.156	0.181
D	1.98	2.14	2.29	0.0779	0.084	0.090
E	0.150	0.200	0.310	0.006	0.009	0.012
F	0.76	1.14	1.52	0.030	0.045	0.060
G	-	-	0.203	-	-	0.008
H	4.80	5.11	5.28	0.194	0.201	0.208

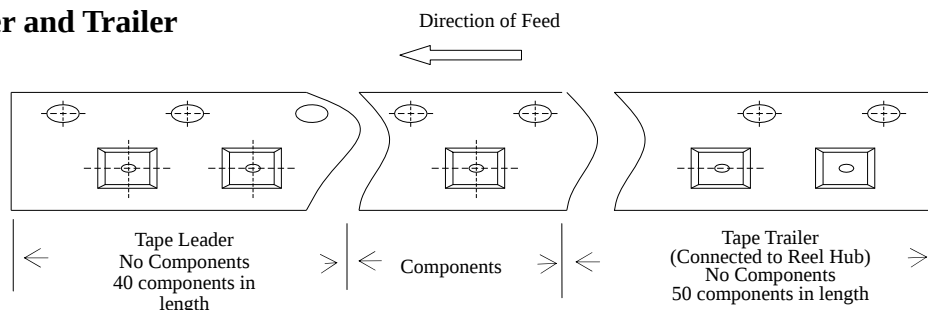
SMA Reel Dim



A0	B0	B1	D	D1	E	F	K0	T	W	P0	P1	P2
2.7	5.3	5.5	1.5	1.0	1.75	3.5	2.5	0.50	12	4.0	4.0	2.0

Dimension is in mm

Leader and Trailer



The LEADER is a minimum of 40 components in length and it consists of empty cavities with sealed cover tape
The TRAILER is a minimum of 50 components in length and it consists of empty cavities with sealed cover tape.