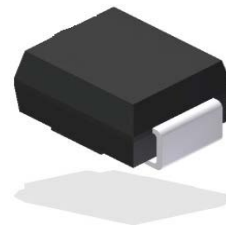


Features

- Voltage Range 5.0V - 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
SMAJxxA(CA)	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%

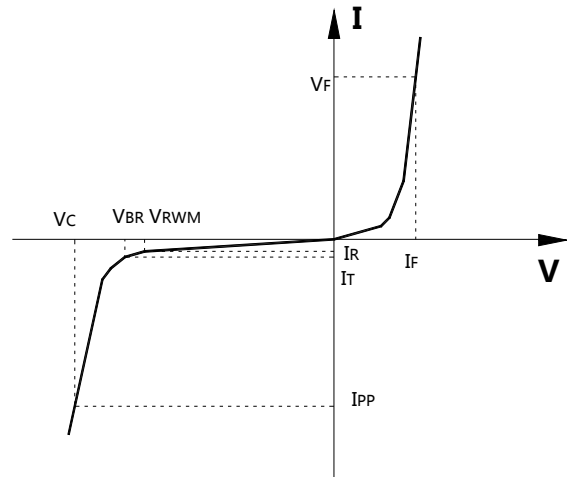
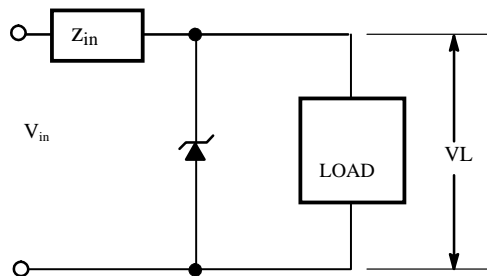
Electrical Characteristics (Tamb=25°C Unless Otherwise Specified)

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)
SMAJ5.0A	SMAJ5.0CA	HE	TE	5	6.4	7.35	10	800	9.2	43.5
SMAJ6.0A	SMAJ6.0CA	HG	TG	6	6.67	7.89	10	800	10.3	38.8
SMAJ6.5A	SMAJ6.5CA	HK	TK	6.5	7.22	8.3	10	500	11.2	35.7
SMAJ7.0A	SMAJ7.0CA	HM	TM	7	7.78	8.95	10	200	12	33.3
SMAJ7.5A	SMAJ7.5CA	HP	TP	7.5	8.33	9.58	1	100	12.9	31
SMAJ8.0A	SMAJ8.0CA	HR	TR	8	8.89	10.23	1	50	13.6	29.4
SMAJ8.5A	SMAJ8.5CA	HT	TT	8.5	9.44	10.82	1	20	14.4	27.8
SMAJ9.0A	SMAJ9.0CA	HV	TV	9	10	11.5	1	10	15.4	26
SMAJ10A	SMAJ10CA	HX	TX	10	11.1	12.8	1	5	17	23.5
SMAJ11A	SMAJ11CA	HZ	TZ	11	12.2	14	1	5	18.2	22
SMAJ12A	SMAJ12CA	IE	UE	12	13.3	15.3	1	5	19.9	20.1
SMAJ13A	SMAJ13CA	IG	UG	13	14.4	16.5	1	5	21.5	18.6
SMAJ14A	SMAJ14CA	IK	UK	14	15.6	17.9	1	5	23.2	17.2
SMAJ15A	SMAJ15CA	IM	UM	15	16.7	19.2	1	5	24.4	16.4
SMAJ16A	SMAJ16CA	IP	UP	16	17.8	20.5	1	5	26	15.4
SMAJ17A	SMAJ17CA	IR	UR	17	18.9	21.7	1	5	27.6	14.5
SMAJ18A	SMAJ18CA	IT	UT	18	20	23.3	1	5	29.2	13.7
SMAJ20A	SMAJ20CA	IV	UV	20	22.2	25.5	1	5	32.4	12.3
SMAJ22A	SMAJ22CA	IX	UX	22	24.4	28	1	5	35.5	11.3
SMAJ24A	SMAJ24CA	IZ	UZ	24	26.7	30.7	1	5	38.9	10.3
SMAJ26A	SMAJ26CA	JE	VE	26	28.9	33.2	1	5	42.1	9.5
SMAJ28A	SMAJ28CA	JG	VG	28	31.1	35.8	1	5	45.4	8.8
SMAJ30A	SMAJ30CA	JK	VK	30	33.3	38.3	1	5	48.4	8.3
SMAJ33A	SMAJ33CA	JM	VM	33	36.7	42.2	1	5	53.3	7.5
SMAJ36A	SMAJ36CA	JP	VP	36	40	46	1	5	58.1	6.9
SMAJ40A	SMAJ40CA	JR	VR	40	44.4	51.1	1	5	64.5	6.2
SMAJ43A	SMAJ43CA	JT	VT	43	47.8	54.9	1	5	69.4	5.8
SMAJ45A	SMAJ45CA	JV	VV	45	50	57.5	1	5	72.7	5.5
SMAJ48A	SMAJ48CA	JX	VX	48	53.3	61.3	1	5	77.4	5.2
SMAJ51A	SMAJ51CA	JZ	VZ	51	56.7	65.2	1	5	82.4	4.9
SMAJ54A	SMAJ54CA	RE	WE	54	60	69	1	5	87.1	4.6
SMAJ58A	SMAJ58CA	RG	WG	58	64.4	74.1	1	5	93.6	4.3
SMAJ60A	SMAJ60CA	RK	WK	60	66.7	76.7	1	5	96.8	4.1
SMAJ64A	SMAJ64CA	RM	WM	64	71.1	81.8	1	5	103	3.9
SMAJ70A	SMAJ70CA	RP	WP	70	77.8	89.5	1	5	113	3.5
SMAJ75A	SMAJ75CA	RR	WR	75	83	95.8	1	5	121	3.3
SMAJ78A	SMAJ78CA	RT	WT	78	86	99.7	1	5	126	3.2
SMAJ85A	SMAJ85CA	RV	WV	85	94	108.2	1	5	137	2.9
SMAJ90A	SMAJ90CA	RX	WX	90	100	115.5	1	5	146	2.7

Electrical Characteristics ($T_{amb}=25^{\circ}C$ 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)
SMAJ100A	SMAJ100CA	RZ	WZ	100	111	128	1	5	162	2.5
SMAJ110A	SMAJ110CA	SE	XE	110	122	140.5	1	5	177	2.3
SMAJ120A	SMAJ120CA	SG	XG	120	133	153	1	5	193	2.1
SMAJ130A	SMAJ130CA	SK	XK	130	144	165.5	1	5	209	1.9
SMAJ150A	SMAJ150CA	SM	XM	150	167	192.5	1	5	243	1.6
SMAJ160A	SMAJ160CA	SP	XP	160	178	205	1	5	259	1.5
SMAJ170A	SMAJ170CA	SR	XR	170	189	217.5	1	5	275	1.5
SMAJ180A	SMAJ180CA	ST	XT	180	200	230.4	1	5	290	1.4
SMAJ190A	SMAJ190CA	SV	XV	190	211	243.2	1	5	306	1.3
SMAJ200A	SMAJ200CA	SX	XX	200	222	256	1	5	322	1.2
SMAJ210A	SMAJ210CA	SZ	XZ	210	233	268.8	1	5	339	1.2
SMAJ220A	SMAJ220CA	ZE	YE	220	244	281.6	1	5	355	1.1
SMAJ250A	SMAJ250CA	ZG	YG	250	278	309	1	5	403	1
SMAJ300A	SMAJ300CA	ZK	YK	300	333	371	1	5	484	0.8
SMAJ350A	SMAJ350CA	ZM	YM	350	389	432	1	5	565	0.7
SMAJ400A	SMAJ400CA	ZP	YP	400	444	494	1	5	645	0.6
SMAJ440A	SMAJ440CA	ZR	YR	440	489	543	1	5	710	0.6

Symbol	Parameter
V_{RWM}	Working Peak Reverse Voltage
V_{BR}	Breakdown Voltage @ I_T
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

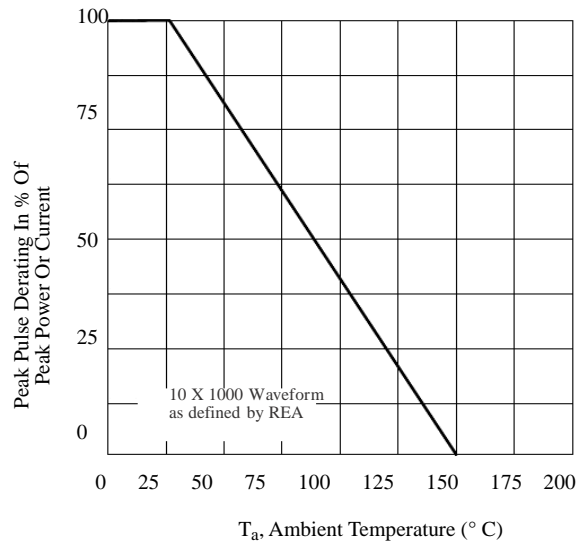


Fig. 1 Pulse Derating Curve

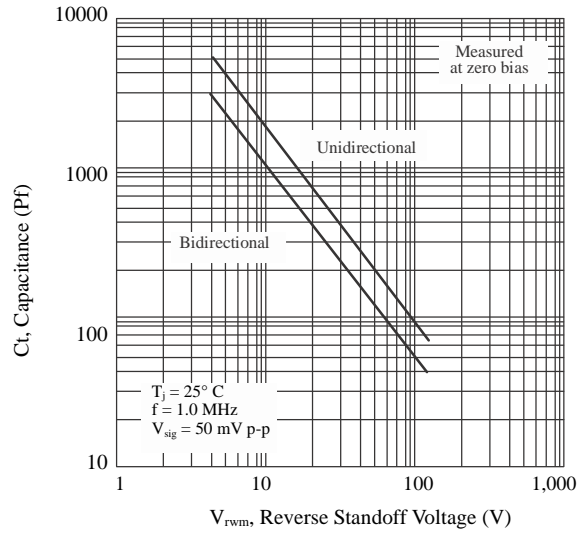


Fig. 2 Typical Total Capacitance

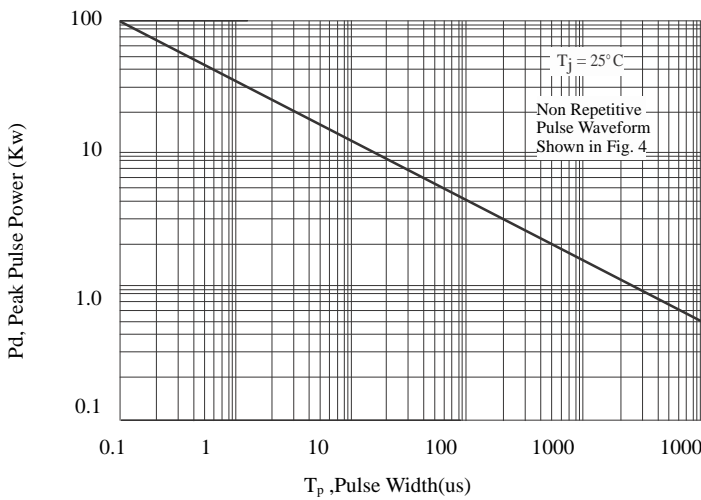


Fig.3 Pulse Rating Curve

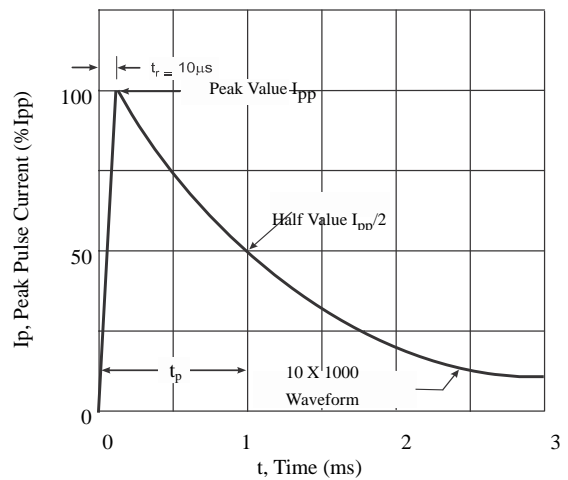


Fig. 4 Pulse Waveform

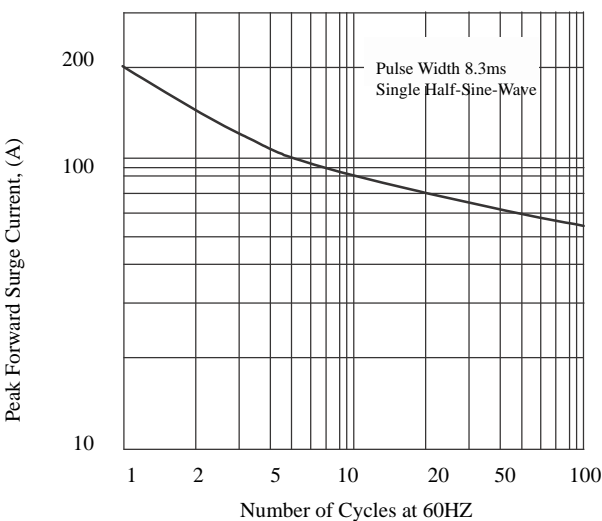


Fig. 5, Maximum Non-Repetitive Surge Current

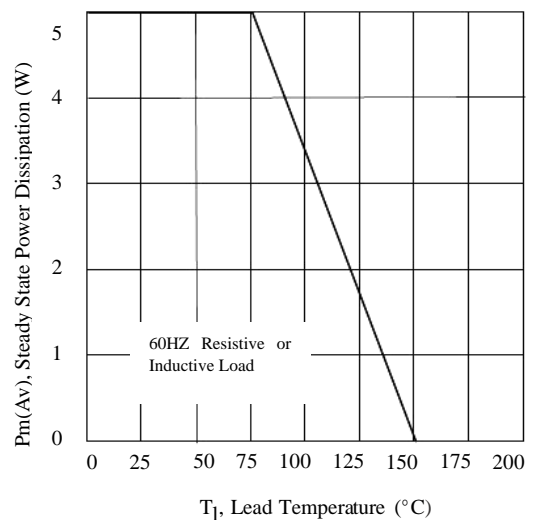
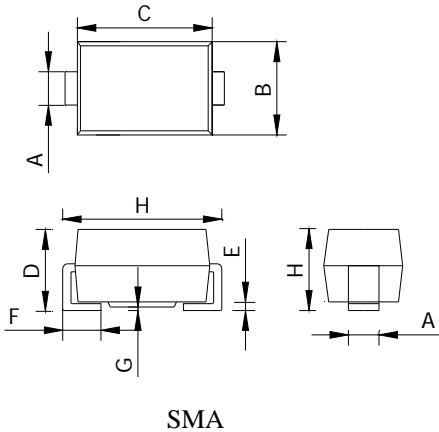


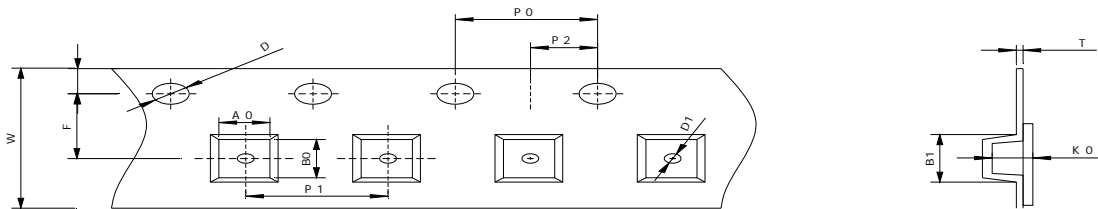
Fig. 6 Steady State Power Derating Curve

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)

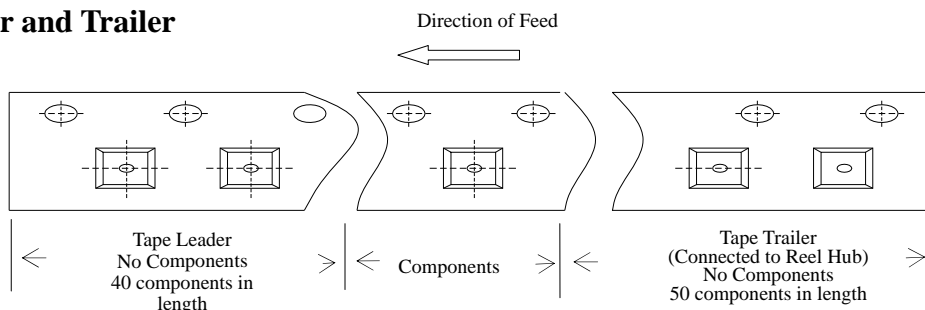


DIM	Millimeters			Inches		
	Min	Nom	Max	Min	Nom	Max
A	1.25	1.45	1.65	0.049	0.057	0.065
B	2.40	2.67	2.79	0.095	0.105	0.110
C	3.39	3.95	4.60	0.133	0.156	0.181
D	1.98	2.14	2.29	0.0779	0.084	0.090
E	0.150	0.200	0.310	0.006	0.009	0.012
F	0.76	1.14	1.52	0.030	0.045	0.060
G	-	-	0.203	-	-	0.008
H	4.80	5.11	5.28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

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[P6KE13CA](#) [P6KE43CA](#) [P6KE6.8CA](#) [P6KE8.2](#) [P6SMBJ20CA](#) [JANTX1N6072A](#) [SR2835ESKG](#) [SA90CA](#)