

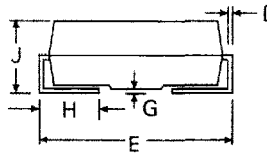
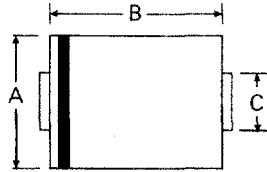


# SMAJ5.0A/CA - SMAJ170A/CA

## 400W SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSORS

### Features

- 400W Peak Pulse Power Dissipation
- 5.0V - 170V Standoff Voltages
- Glass Passivated Die Construction
- Uni- and Bi-Directional Versions Available
- Excellent Clamping Capability
- Fast Response Time
- Plastic Case Material has UL Flammability Classification Rating 94V-0



SMA		
Dim	Min	Max
A	2.29	2.92
B	4.00	4.60
C	1.27	1.63
D	0.15	0.31
E	4.80	5.59
G	0.10	0.20
H	0.76	1.52
J	2.01	2.62
All Dimensions in mm		

### Mechanical Data

- Case: Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band or Cathode Notch
- Marking:  
Unidirectional - Device Code and Cathode Band  
Bidirectional - Device Code Only
- Weight: 0.064 grams (approx)

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

Characteristic	Symbol	Value	Unit
Peak Power Dissipation, $t_p = 1$ ms (Non repetitive current pulse, per Figure 1 and derated above $T_A = 25^\circ\text{C}$ per Figure 1) (See Note 1)	$P_{PK}$	400	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) (See Notes 1, 2, & 3)	$I_{FSM}$	40	A
Instantaneous Forward Voltage @ $I_{PP} = 35\text{A}$ (See Notes 1, 2, & 3)	$V_F$	3.5	V
Operating and Storage Temperature Range	$T_j, T_{STG}$	-55 to +150	$^\circ\text{C}$

- Notes:
1. Mounted on  $5.0\text{ mm}^2$  copper land areas.
  2. Measured with 8.3 ms single half sine-wave. Duty cycle = 4 pulses per minute maximum.
  3. Unidirectional units only.  $V_{F(max)} = 35\text{ V}$  @  $I_P = 35\text{ A}$  (8.3 ms half sine-wave)

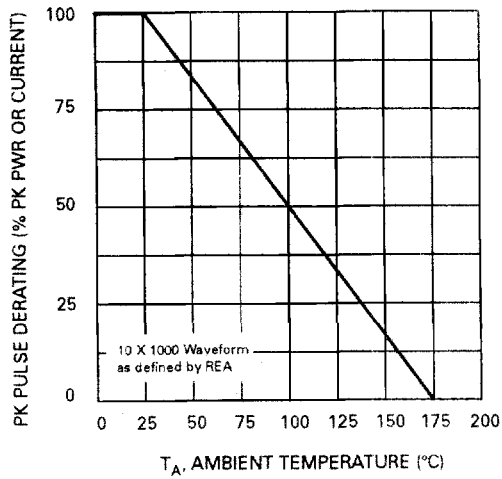


Fig. 1 Pulse Derating Curve

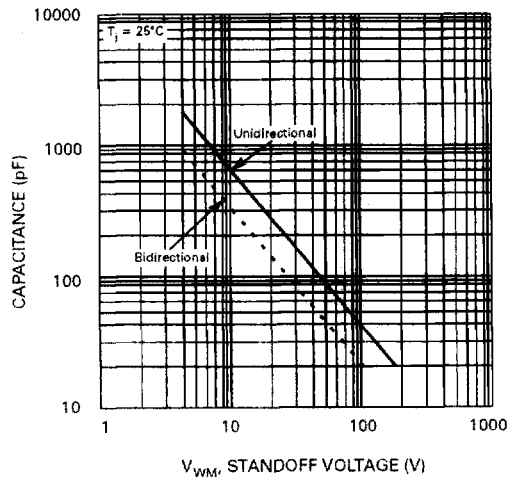


Fig. 2, Typical Junction Capacitance

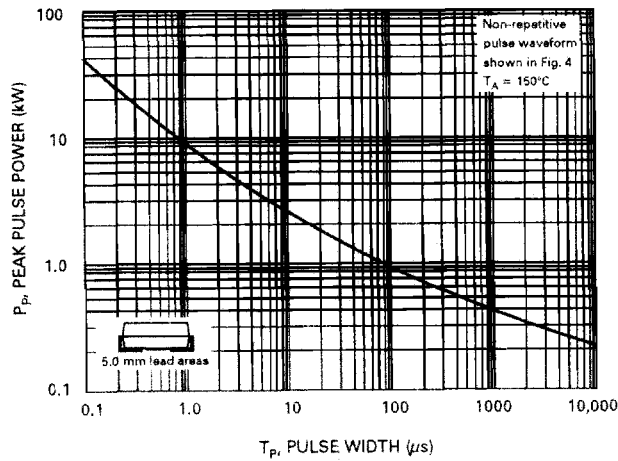


Fig. 3 Pulse Rating Curve

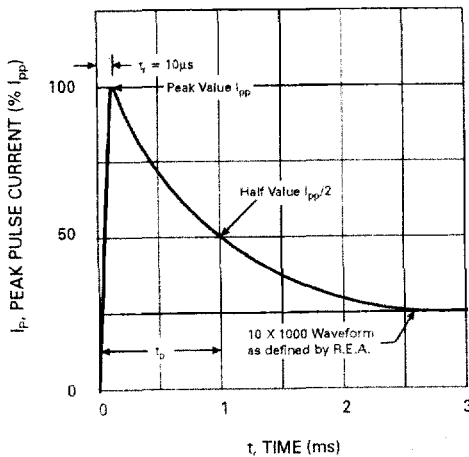


Fig. 4 Pulse Waveform

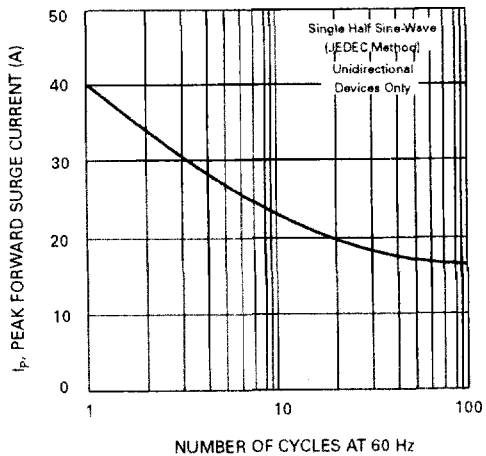


Fig. 5 Maximum Non-Repetitive Surge Current

Part Number Add C for Bidirectional	Reverse Standoff Voltage	Min. $B_V$ @ $I_T$			Max. Reverse Leakage@VR ( $\mu$ A)	Max. clamping Voltage@ $I_{PP}$	Max. Peak Pulse Current $I_{PP}$	Marking Code	
		V	Min (V)	Max (V)				$I_T$ (mA)	UNI- / BI-
See Note 1	V	Min (V)	Max (V)	$I_T$ (mA)	UNI- / BI-	V	A	UNI	BI
SMAJ5.0(C)	5.0	6.40	7.30	10	800/1600	9.6	41.6	AD	ADP
SMAJ5.0(C)A	5.0	6.40	7.00	10	800/1600	9.2	43.5	AE	AEP
SMAJ6.0(C)	6.0	6.67	8.15	10	800/1600	11.4	35.1	AF	AFP
SMAJ6.0(C)A	6.0	6.67	7.37	10	800/1600	10.3	38.8	AG	AGP
SMAJ6.5(C)	6.5	7.22	8.82	10	500/1000	12.3	32.5	AH	AHP
SMAJ6.5(C)A	6.5	7.22	7.98	10	500/1000	11.2	35.7	AK	AKP
SMAJ7.0(C)	7.0	7.78	9.51	10	200/400	13.3	30.1	AL	ALP
SMAJ7.0(C)A	7.0	7.78	8.60	10	200/400	12.0	33.3	AM	AMP
SMAJ7.5(C)	7.5	8.33	10.3	1	100/200	14.3	28.0	AN	ANP
SMAJ7.5(C)A	7.5	8.33	9.21	1	100/200	12.9	31.0	AP	APP
SMAJ8.0(C)	8.0	8.89	10.9	1	50/100	15.0	26.5	AQ	AQP
SMAJ8.0(C)A	8.0	8.89	9.83	1	50/100	13.6	29.4	AR	ARP
SMAJ8.5(C)	8.5	9.44	11.5	1	10/20	15.9	25.1	AS	ASP
SMAJ8.5(C)A	8.5	9.44	10.4	1	10/20	14.4	27.7	AT	ATP
SMAJ9.0(C)	9.0	10.0	12.2	1	5/10	16.9	23.6	AU	AUP
SMAJ9.0(C)A	9.0	10.0	11.1	1	5/10	15.4	26.0	AV	AVP
SMAJ10(C)	10	11.1	13.6	1	5/10	18.8	21.2	AW	AWP
SMAJ10(C)A	10	11.1	12.3	1	5/10	17.0	23.5	AX	AXP
SMAJ11(C)	11	12.2	14.9	1	5	20.1	20.0	AY	AYP
SMAJ11(C)A	11	12.2	13.5	1	5	18.2	22.0	AZ	AZP
SMAJ12(C)	12	13.3	16.3	1	5	22.0	18.1	BD	BDP
SMAJ12(C)A	12	13.3	14.7	1	5	19.9	20.1	BE	BEP
SMAJ13(C)	13	14.4	17.6	1	5	23.8	16.8	BF	BFP
SMAJ13(C)A	13	14.4	15.9	1	5	21.5	18.6	BG	BGP
SMAJ14(C)	14	15.6	19.1	1	5	25.8	15.5	BH	BHP
SMAJ14(C)A	14	15.6	17.2	1	5	23.2	17.2	BK	BKP
SMAJ15(C)	15	16.7	20.4	1	5	26.9	14.8	BL	BLP
SMAJ15(C)A	15	16.7	18.5	1	5	24.4	16.4	BM	BMP
SMAJ16(C)	16	17.8	21.8	1	5	28.8	13.8	BN	BNP
SMAJ16(C)A	16	17.8	19.7	1	5	26.0	15.3	BP	BPP
SMAJ17(C)	17	18.9	23.1	1	5	30.5	13.1	BQ	BQP
SMAJ17(C)A	17	18.9	20.9	1	5	27.6	14.5	BR	BRP
SMAJ18(C)	18	20.0	24.4	1	5	32.2	12.4	BS	BSP
SMAJ18(C)A	18	20.0	22.1	1	5	29.2	13.7	BT	BTP
SMAJ20(C)	20	22.2	27.1	1	5	35.8	11.1	BU	BUP
SMAJ20(C)A	20	22.2	24.5	1	5	32.4	12.3	BV	BVP
SMAJ22(C)	22	24.4	29.8	1	5	39.4	10.1	BW	BWP
SMAJ22(C)A	22	24.4	26.9	1	5	35.5	11.2	BX	BXP
SMAJ24(C)	24	26.7	32.6	1	5	43.0	9.3	BY	BYP
SMAJ24(C)A	24	26.7	29.5	1	5	38.9	10.3	BZ	BZP
SMAJ26(C)	26	28.9	31.9	1	5	46.6	8.6	CD	CDP
SMAJ26(C)A	26	28.9	25.3	1	5	42.1	9.5	CE	CEP
SMAJ28(C)	28	31.1	38.0	1	5	50.0	8.0	CF	CFP
SMAJ28(C)A	28	31.1	34.4	1	5	45.4	8.8	CG	CGP
SMAJ30(C)	30	33.3	40.7	1	5	53.5	7.5	CH	CHP
SMAJ30(C)A	30	33.3	36.8	1	5	48.4	8.3	CK	CKP

Notes: For unidirectional devices only:  $V_R(\text{MAX}) = 3.5 \text{ V}$  @  $I_F = 35 \text{ A}$  (8.3 ms half sine-wave)  
1. Suffix C denotes Bi-directional device, suffix A denotes 5% tolerance device, no suffix denotes 10% tolerance device.  
2.  $B_V$  measured with  $I_T$  current pulse = 300 $\mu$ s

Part Number Add C for Bi-directional	Reverse Standoff Voltage	Min. Bv @ I <sub>T</sub>			Max. Reverse Leakage@VR ( $\mu$ A)	Max. clamping Voltage@ I <sub>pp</sub>	Max. Peak Pulse Current I <sub>pp</sub>	Marking Code	
		V	Min (V)	Max (V)				I <sub>T</sub> (mA)	UNI- / BI-
See Note 1	V	Min (V)	Max (V)	I <sub>T</sub> (mA)	UNI- / BI-	V	A	UNI	BI
SMAJ33(C)	33	36.7	44.9	1	5	59.0	6.8	CL	CLP
SMAJ33(C)A	33	36.7	40.6	1	5	53.3	7.5	CM	CMP
SMAJ36(C)	36	40.0	48.9	1	5	64.3	6.2	CN	CNP
SMAJ36(C)A	36	40.0	44.2	1	5	58.1	6.9	CP	CPP
SMAJ40(C)	40	44.4	54.3	1	5	71.4	5.6	CQ	CQP
SMAJ40(C)A	40	44.4	49.1	1	5	64.5	6.2	CR	CRP
SMAJ43(C)	43	47.8	58.4	1	5	76.7	5.2	CS	CSP
SMAJ43(C)A	43	47.8	52.8	1	5	69.4	5.7	CT	CTP
SMAJ45(C)	45	50.0	61.1	1	5	80.3	5.0	CU	CUP
SMAJ45(C)A	45	50.0	55.3	1	5	72.7	5.5	CV	CVP
SMAJ48(C)	48	53.3	65.1	1	5	85.5	4.7	CW	CWP
SMAJ48(C)A	48	53.3	58.9	1	5	77.4	5.2	CX	CXP
SMAJ51(C)	51	56.7	69.3	1	5	91.1	4.4	CY	CYP
SMAJ51(C)A	51	56.7	62.7	1	5	82.4	4.9	CZ	CZP
SMAJ54(C)	54	60.0	73.3	1	5	96.3	4.2	RD	RDP
SMAJ54(C)A	54	60.0	66.3	1	5	87.1	4.6	RE	REP
SMAJ58(C)	58	64.4	78.7	1	5	103	3.9	RF	RFP
SMAJ58(C)A	58	64.4	71.2	1	5	93.6	4.3	RG	RGP
SMAJ60(C)	60	66.7	81.5	1	5	107.0	3.7	RH	RHP
SMAJ60(C)A	60	66.7	73.7	1	5	96.8	4.1	RK	RKP
SMAJ64(C)	64	71.1	86.4	1	5	114	3.5	RL	RLP
SMAJ64(C)A	64	71.1	78.6	1	5	103	3.9	RM	RMP
SMAJ70(C)	70	77.8	95.1	1	5	125	3.2	RN	RNP
SMAJ70(C)A	70	77.8	86.0	1	5	113	3.5	RP	RPP
SMAJ75(C)	75	83.3	102	1	5	134	3.0	RQ	RQP
SMAJ75(C)A	75	83.3	92.1	1	5	121	3.3	RR	RRP
SMAJ78(C)	78	86.7	106	1	5	139	2.9	RS	RSP
SMAJ78(C)A	78	86.7	95.8	1	5	126	2.2	RT	RTP
SMAJ85(C)	85	94.4	115	1	5	151	2.6	RU	RUP
SMAJ85(C)A	85	94.4	104	1	5	137	2.9	RV	RVP
SMAJ90(C)	90	100	122	1	5	160	2.5	RW	RWP
SMAJ90(C)A	90	100	111	1	5	146	2.7	RX	RXP
SMAJ100(C)	100	111	136	1	5	179	2.2	RY	RYP
SMAJ100(C)A	100	111	123	1	5	162	2.5	RZ	RZP
SMAJ110(C)	110	122	149	1	5	196	2.0	SD	SDP
SMAJ110(C)A	110	122	135	1	5	177	2.3	SE	SEP
SMAJ120(C)	120	133	163	1	5	214	1.9	SF	SFP
SMAJ120(C)A	120	133	147	1	5	193	2.0	SG	SGP
SMAJ130(C)	130	144	176	1	5	231	1.7	SH	SHP
SMAJ130(C)A	130	144	159	1	5	209	1.9	SK	SKP
SMAJ150(C)	150	167	204	1	5	268	1.5	SL	SLP
SMAJ150(C)A	150	167	185	1	5	243	1.6	SM	SMP
SMAJ160(C)	160	178	218	1	5	287	1.4	SN	SNP
SMAJ160(C)A	160	178	197	1	5	259	1.5	SP	SPP
SMAJ170(C)	170	189	231	1	5	304	1.3	SQ	SQP
SMAJ170(C)A	170	189	209	1	5	275	1.4	SR	SRP

Notes: For unidirectional devices only: V<sub>F</sub>(MAX) = 3.5 V @ I<sub>F</sub> = 35 A (8.3 ms half sine-wave)  
1. Suffix C denotes Bi-directional device, suffix A denotes 5% tolerance device, no suffix denotes 10% tolerance device.  
2. Bv measured with I<sub>T</sub> current pulse = 300 $\mu$ s