DATA SHEET

TRANSIENT VOLTAGE SUPPRESSOR – SMAJ SERIES

FEATURE

- ✧ For surface mounted applications in order to optimize board space.
- ✧ Low profile package.
- ✧ Built-in strain relief.
- ✧ Glass passivated junction.
- ✧ Low inductance.
- ✧ Excellent clamping capability.
- ✧ Repetition Rate (duty cycle):0.01%.
- ✧ Fast response time: typically less than 1.0ps from 0 Volts to V_{BR} for unidirectional types.
- ✧ Typical I_R less than 1μA above 10V.
- ✧ High Temperature soldering: 250°C/10 seconds at terminals.
- ✧ Plastic package has Underwriters Laboratory Flammability 94V-O.

SMA/DO-214AC

MECHANICAL DATE

- ✧ Case: JEDEC DO214AC. Molded plastic over glass passivated junction.
- ✧ Terminal: Solder plated, solderable per MIL-STD-750, Method 2026.
- ✧ Polarity: Color band denoted positive end (cathode) except Bidirectional.
- ✧ Standard Packaging: 12mm tape (EIA STD RS-481).
- ✧ Weight: 0.002 ounce, 0.061 grams.

DEVICES FOR BIPOLAR APPLICATION

For bidirectional use C or CA suffix for types SMAJ5.0 thru types SMAJ440 (e.g.SMAJ5.0CA, SMAJ440CA), electrical characteristics apply in both directions.

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25℃ ambient temperature unless otherwise specified.

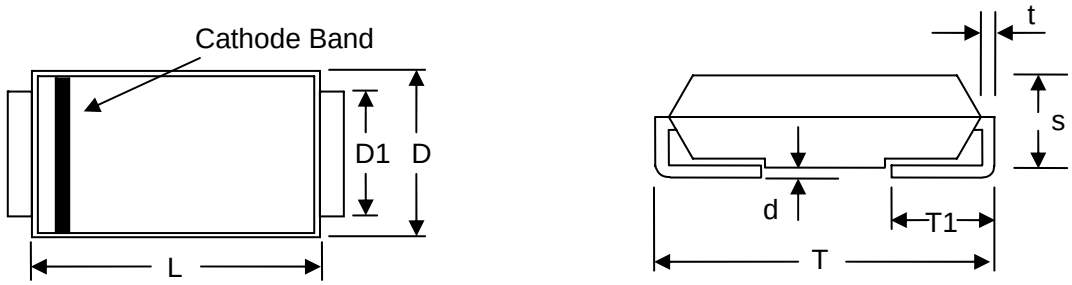
RATING	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation on 10/1000μs waveform (Note 1, 2, FIG.1).	P_{PPM}	Minimum 400	Watts
Peak Pulse Current of on 10/1000μs waveform (Note 1, FIG.3).	$P_{M(AV)}$	See Table 1	Amps
Peak Forward Surge Current,8.3ms Single Half Sine-Wave Superimposed on Rated Load,(JEDEC Method) (Note2,3)	I_{FSM}	40	Amps
Operating junction and Storage Temperature Range.	T_J,T_{STG}	-55 to +150	℃

Notes: 1. Non-repetitive current pulse, per Fig. 3 and derated above TA = 25℃ per Fig. 2.

2. Mounted on 5.0mm x 5.0mm (0.03mm thick) Copper Pads to each terminal.

3. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.

PACKAGE DIMENSIONS



SMA/DO-214AC

Item	Millimeters		Inches	
	Min.	Max.	Min.	Max.
L	3.99	4.50	0.157	0.177
D	2.54	2.79	0.100	0.110
D1	1.25	1.65	0.049	0.065
T	4.93	5.28	0.194	0.208
T1	0.76	1.52	0.030	0.060
d	-	0.203	-	0.008
s	1.98	2.29	0.076	0.090
t	0.152	0.305	0.006	0.012

ELECTRICAL CHARACTERISTICS

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @I_T	Breakdown Voltage @I_T	Test Current	Maximum Clamping Voltage @I_{PP}	Peak Pulse Current	Reverse Leakage @V_{RWM}
UNI-POLAR	BI-POLAR	UNI	BI	V_{RWM}(V)	$V_{BR\ MIN.}$(V)	$V_{BR\ MAX.}$(V)	I_T(mA)	V_C(V)	I_{PP}(A)	I_R(μA)
SMAJ5.0A	SMAJ5.0CA	HE	TE	5.0	6.40	7.25	10	9.2	43.5	800
SMAJ6.0A	SMAJ6.0CA	HG	TG	6.0	6.67	7.67	10	10.3	38.8	800
SMAJ6.5A	SMAJ6.5CA	HK	TK	6.5	7.22	8.30	10	11.2	35.7	500
SMAJ7.0A	SMAJ7.0CA	HM	TM	7.0	7.78	8.95	10	12.0	33.3	200
SMAJ7.5A	SMAJ7.5CA	HP	TP	7.5	8.33	9.58	1	12.9	31.0	100
SMAJ8.0A	SMAJ8.0CA	HR	TR	8.0	8.89	10.23	1	13.6	29.4	50
SMAJ8.5A	SMAJ8.5CA	HT	TT	8.5	9.44	10.82	1	14.4	27.7	20
SMAJ9.0A	SMAJ9.0CA	HV	TV	9.0	10.00	11.50	1	15.4	26.0	10
SMAJ10A	SMAJ10CA	HX	TX	10.0	11.10	12.80	1	17.0	23.5	5
SMAJ11A	SMAJ11CA	HZ	TZ	11.0	12.20	14.00	1	18.2	22.0	5
SMAJ12A	SMAJ12CA	IE	UE	12.0	13.30	15.30	1	19.9	20.1	5
SMAJ13A	SMAJ13CA	IG	UG	13.0	14.40	16.50	1	21.5	18.6	5
SMAJ14A	SMAJ14CA	IK	UK	14.0	15.60	17.90	1	23.2	17.2	5
SMAJ15A	SMAJ15CA	IM	UM	15.0	16.70	19.20	1	24.4	16.4	5
SMAJ16A	SMAJ16CA	IP	UP	16.0	17.80	20.50	1	26.0	15.3	5
SMAJ17A	SMAJ17CA	IR	UR	17.0	18.90	21.70	1	27.6	14.5	5
SMAJ18A	SMAJ18CA	IT	UT	18.0	20.00	23.30	1	29.2	13.7	5
SMAJ20A	SMAJ20CA	IV	UV	20.0	22.20	25.50	1	32.4	12.3	5

ELECTRICAL CHARACTERISTICS

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @I_T	Breakdown Voltage @I_T	Test Current	Maximum Clamping Voltage @I_{PP}	Peak Pulse Current	Reverse Leakage @V_{RWM}
UNI-POLAR	BI-POLAR	UNI	BI	V_{RWM}(V)	$V_{BR\ MIN.}$(V)	$V_{BR\ MAX.}$(V)	I_T(mA)	V_C(V)	I_{PP}(A)	I_R(μA)
SMAJ22A	SMAJ22CA	IX	UX	22.0	24.40	28.00	1	35.5	11.2	5
SMAJ24A	SMAJ24CA	IZ	UZ	24.0	26.70	30.70	1	38.9	10.3	5
SMAJ26A	SMAJ26CA	JE	VE	26.0	28.90	33.20	1	42.1	9.5	5
SMAJ28A	SMAJ28CA	JG	VG	28.0	31.10	35.80	1	45.4	8.8	5
SMAJ30A	SMAJ30CA	JK	VK	30.0	33.30	38.30	1	48.4	8.3	5
SMAJ33A	SMAJ33CA	JM	VM	33.0	36.70	42.20	1	53.3	7.5	5
SMAJ36A	SMAJ36CA	JP	VP	36.0	40.00	46.00	1	58.1	6.9	5
SMAJ40A	SMAJ40CA	JR	VR	40.0	44.40	51.10	1	64.5	6.2	5
SMAJ43A	SMAJ43CA	JT	VT	43.0	47.80	54.90	1	69.4	5.7	5
SMAJ45A	SMAJ45CA	JV	VV	45.0	50.00	57.50	1	72.7	5.5	5
SMAJ48A	SMAJ48CA	JX	VX	48.0	53.30	61.30	1	77.4	5.2	5
SMAJ51A	SMAJ51CA	JZ	VZ	51.0	56.70	65.20	1	82.4	4.9	5
SMAJ54A	SMAJ54CA	RE	WE	54.0	60.00	69.00	1	87.1	4.6	5
SMAJ58A	SMAJ58CA	RG	WG	58.0	64.40	74.10	1	93.6	4.3	5
SMAJ60A	SMAJ60CA	RK	WK	60.0	66.70	76.70	1	96.8	4.1	5
SMAJ64A	SMAJ64CA	RM	WM	64.0	71.10	81.80	1	103.0	3.9	5
SMAJ70A	SMAJ70CA	RP	WP	70.0	77.80	89.50	1	113.0	3.5	5
SMAJ75A	SMAJ75CA	RR	WR	75.0	83.30	95.80	1	121.0	3.3	5
SMAJ78A	SMAJ78CA	RT	WT	78.0	86.70	99.70	1	126.0	3.2	5
SMAJ85A	SMAJ85CA	RV	WV	85.0	94.40	108.20	1	137.0	2.9	5
SMAJ90A	SMAJ90CA	RX	WX	90.0	100.00	115.50	1	146.0	2.7	5
SMAJ100A	SMAJ100CA	RZ	WZ	100.0	111.00	128.00	1	162.0	2.5	5
SMAJ110A	SMAJ110CA	SE	XE	110.0	122.00	140.50	1	177.0	2.3	5
SMAJ120A	SMAJ120CA	SG	XG	120.0	133.00	153.00	1	193.0	2.0	5
SMAJ130A	SMAJ130CA	SK	XK	130.0	144.00	165.50	1	209.0	1.9	5
SMAJ150A	SMAJ150CA	SM	XM	150.0	167.00	192.50	1	243.0	1.6	5
SMAJ160A	SMAJ160CA	SP	XP	160.0	178.00	205.00	1	259.0	1.5	5
SMAJ170A	SMAJ170CA	SR	XR	170.0	189.00	217.50	1	275.0	1.4	5
SMAJ180A	SMAJ180CA	ST	YT	180.0	198.00	230.40	1	292.0	1.3	5
SMAJ190A	SMAJ190CA	SV	YV	190.0	209.00	243.20	1	308.0	1.3	5
SMAJ200A	SMAJ200CA	SX	YX	200.0	220.00	256.00	1	324.0	1.2	5
SMAJ210A	SMAJ210CA	SZ	YZ	210.0	231.00	268.80	1	340.0	1.2	5
SMAJ220A	SMAJ220CA	GE	ZE	220.0	242.00	281.60	1	356.0	1.1	5
SMAJ250A	SMAJ250CA	SZ	VZ	250.0	279.00	309.00	1	405.0	1.0	5
SMAJ300A	SMAJ300CA	TE	UE	300.0	335.00	371.00	1	486.0	0.8	5
SMAJ350A	SMAJ350CA	TG	UG	350.0	391.00	432.00	1	567.0	0.7	5
SMAJ400A	SMAJ400CA	TK	UK	400.0	447.00	494.00	1	648.0	0.6	5
SMAJ440A	SMAJ440CA	TM	UM	440.0	492.00	543.00	1	713.0	0.6	5

Notes: For bidirectional type having V_{RWM} of 10 volts and less, the I_R limit is double.

RATINGS AND CHARACTERISTIC CURVES (TA=25℃ unless otherwise noted)

Pig.1 - Peak Pulse Power Rating Curve

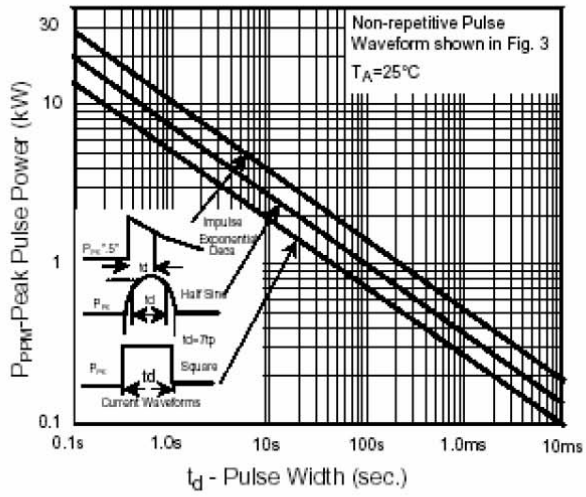


Fig.2-Power Derating Curve

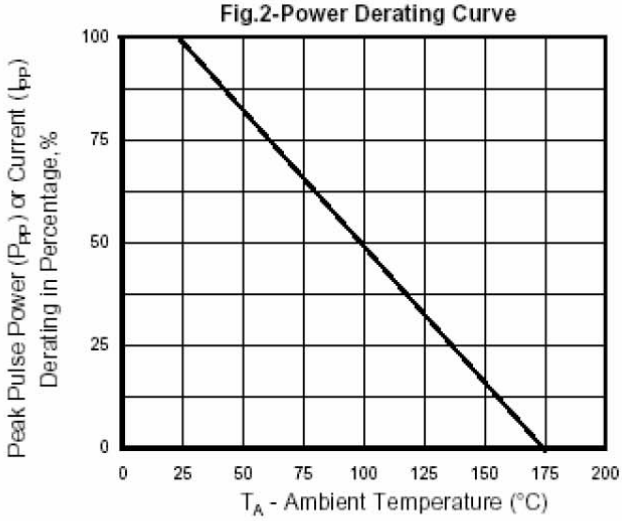


Fig.3 - Pulse Waveform

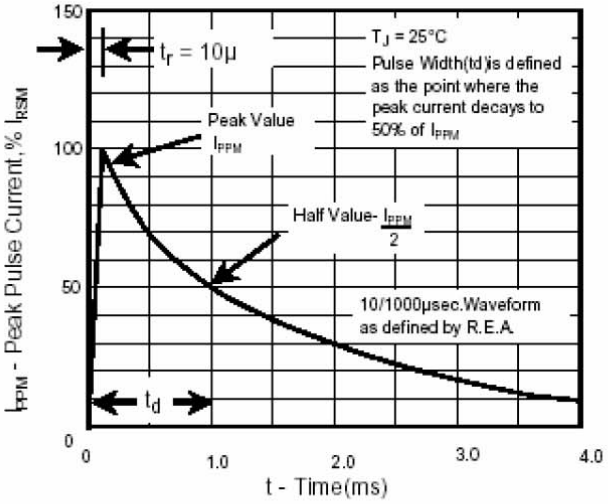


Fig.6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

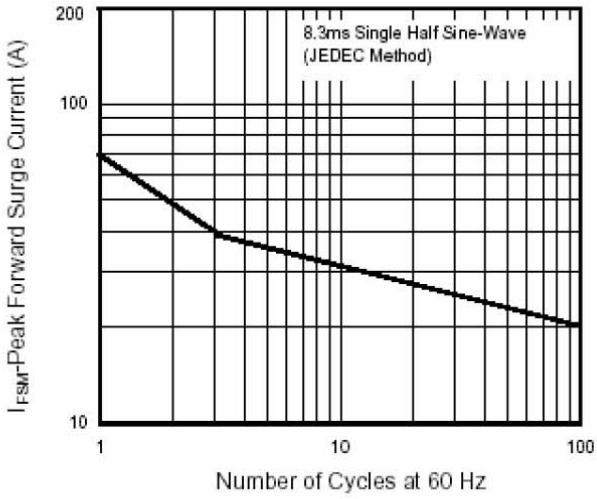


Fig. 5 - Steady State Power Derating Curve

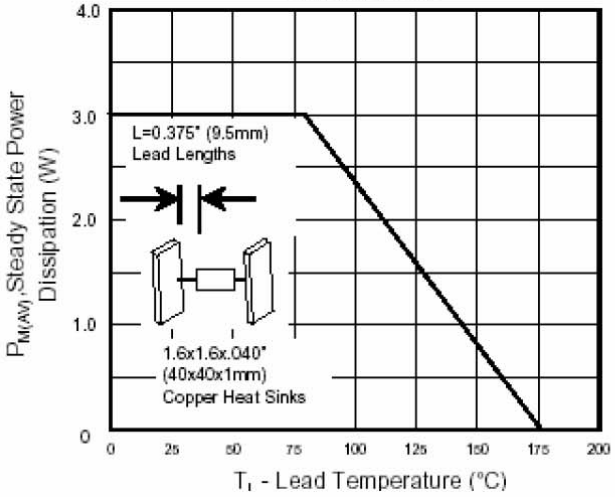


Fig. 6 - Capacitance