



SMAJ SERIES

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSORS



FEATURES

- * For surface mount application
- * Built-in strain relief
- * Excellent clamping capability
- * Low profile package
- * Fast response time: Typically less than 1.0ps from 0 volt to BV min.
- * Typical I_R less than 1 A above 10V
- * High temperature soldering guaranteed: 260°C / 10 seconds at terminals

MECHANICAL DATA

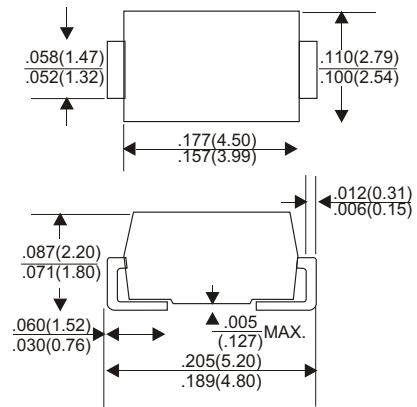
- * Case: Molded plastic
- * Epoxy: UL 94V-0 rate flame retardant
- * Lead: Solderable per MIL-STD-202, method 208 guaranteed
- * Polarity: Color band denotes cathode end except Bidirectional
- * Mounting position: Any
- * Weight: 0.063 grams

VOLTAGE RANGE

5.0 to 188 Volts

400 Watts Peak Power

DO-214AC(SMA)



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating 25°C ambient temperature unless otherwise specified.
Single phase half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

RATINGS	SYMBOL	VALUE	UNITS
Peak Power Dissipation at $T_A=25^\circ\text{C}$, $T_P=1\text{ms}$ (NOTE 1)	P_{PK}	Minimum 400	Watts
Peak Forward Surge Current at 8.3ms Single Half Sine-Wave superimposed on rated load (JEDEC method) (NOTE 3)	I_{FSM}	40	Amps
Maximum Instantaneous Forward Voltage at 25.0A for Unidirectional only	V_F	3.5	Volts
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

NOTES:

1. Non-repetitive current pulse per Fig. 3 and derated above $T_A=25^\circ\text{C}$ per Fig. 2.
2. Mounted on Copper Pad area of 5.0mm²(.013mm Thick) to each terminal.
3. 8.3ms single half sine-wave, duty cycle = 4 pulses per minute maximum.

DEVICES FOR BIPOLAR APPLICATIONS

1. For Bidirectional use C or CA Suffix for types SMAJ5.0 thru SMAJ170.
2. Electrical characteristics apply in both directions.

ELECTRICAL CHARACTERISTICS (Rating at 25°C ambient temperature unless otherwise specified)

DEVICE TYPE	Breakdown Voltage @ $I_T^{(1)}$			Working Peak Reverse Voltage	Maximum Reverse Leakage @ V_{WM}	Maximum Peak Pulse Surge Current	Maximum Clamping Voltage @ I_{PPM}
	V_{BR} (V)		I_T	V_{WM}	I_R	I_{PPM}	V_C
	Min.	Max.	(mA)	(V)	(μ A)	(A)	(V)
SMAJ5.0A(CA)	6.40	7.07	10	5.0	800	43.5	9.2
SMAJ6.0A(CA)	6.67	7.37	10	6.0	800	38.8	10.3
SMAJ6.5A(CA)	7.22	7.98	10	6.5	500	35.7	11.2
SMAJ7.0A(CA)	7.78	8.6	10	7.0	200	33.3	12.0
SMAJ7.5A(CA)	8.33	9.21	1.0	7.5	100	31.0	12.9
SMAJ8.0A(CA)	8.89	9.83	1.0	8.0	50	29.4	13.6
SMAJ8.5A(CA)	9.44	10.4	1.0	8.5	10	27.8	14.4
SMAJ9.0A(CA)	10.0	11.1	1.0	9.0	5.0	26.0	15.4
SMAJ10A(CA)	11.1	12.3	1.0	10	1.0	23.5	17.0
SMAJ11A(CA)	12.2	13.5	1.0	11	1.0	22.0	18.2
SMAJ12A(CA)	13.3	14.7	1.0	12	1.0	20.1	19.9
SMAJ13A(CA)	14.4	15.9	1.0	13	1.0	18.6	21.5
SMAJ14A(CA)	15.6	17.2	1.0	14	1.0	17.2	23.2
SMAJ15A(CA)	16.7	18.5	1.0	15	1.0	16.4	24.4
SMAJ16A(CA)	17.8	19.7	1.0	16	1.0	15.4	26.0
SMAJ17A(CA)	18.9	20.9	1.0	17	1.0	14.5	27.6
SMAJ18A(CA)	20.0	22.1	1.0	18	1.0	13.7	29.2
SMAJ20A(CA)	22.2	24.5	1.0	20	1.0	12.3	32.4
SMAJ22A(CA)	24.4	26.9	1.0	22	1.0	11.3	35.5
SMAJ24A(CA)	26.7	29.5	1.0	24	1.0	10.3	38.9
SMAJ26A(CA)	28.9	31.9	1.0	26	1.0	9.5	42.1
SMAJ28A(CA)	31.1	34.4	1.0	28	1.0	8.8	45.4
SMAJ30A(CA)	33.3	36.8	1.0	30	1.0	8.3	48.4
SMAJ33A(CA)	36.7	40.6	1.0	33	1.0	7.5	53.3
SMAJ36A(CA)	40.0	44.2	1.0	36	1.0	6.9	58.1
SMAJ40A(CA)	44.4	49.1	1.0	40	1.0	6.2	64.5
SMAJ43A(CA)	47.8	52.8	1.0	43	1.0	5.8	69.4
SMAJ45A(CA)	50.0	55.3	1.0	45	1.0	5.5	72.7
SMAJ48A(CA)	53.3	58.9	1.0	48	1.0	5.2	77.4
SMAJ51A(CA)	56.7	62.7	1.0	51	1.0	4.9	82.4
SMAJ54A(CA)	60.0	66.3	1.0	54	1.0	4.6	87.1
SMAJ58A(CA)	64.4	71.2	1.0	58	1.0	4.3	93.6
SMAJ60A(CA)	66.7	73.7	1.0	60	1.0	4.1	96.8
SMAJ64A(CA)	71.1	78.6	1.0	64	1.0	3.9	103
SMAJ70A(CA)	77.8	86	1.0	70	1.0	3.5	113
SMAJ75A(CA)	83.3	92.1	1.0	75	1.0	3.3	121
SMAJ78A(CA)	86.7	95.8	1.0	78	1.0	3.2	126
SMAJ85A(CA)	94.4	104	1.0	85	1.0	2.2	137
SMAJ90A(CA)	100	111	1.0	90	1.0	2.1	146
SMAJ100A(CA)	111	123	1.0	100	1.0	1.9	162
SMAJ110A(CA)	122	135	1.0	110	1.0	1.7	177
SMAJ120A(CA)	133	147	1.0	120	1.0	1.6	193
SMAJ130A(CA)	144	159	1.0	130	1.0	1.4	209
SMAJ150A(CA)	167	185	1.0	150	1.0	1.2	243
SMAJ160A(CA)	178	197	1.0	160	1.0	1.2	259
SMAJ170A(CA)	189	209	1.0	170	1.0	1.09	275
SMAJ188A(CA)	209	231	1.0	188	1.0	0.91	328

Notes

- (1) Pulse test: $t_p \leq 50$ ms
- (2) Surge current waveform per fig. 3 and derate per fig. 2
- (3) For bi-directional types having V_{WM} of 10 V and less, the I_D limit is doubled
- (4) All terms and symbols are consistent with ANSI/IEEE C62.35
- (5) For the bi-directional SMAJ5.0CA, the maximum V_{BR} is 7.25 V
- (6) $V_F = 3.5$ V at $I_F = 25$ A (uni-directional only)

RATINGS AND CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

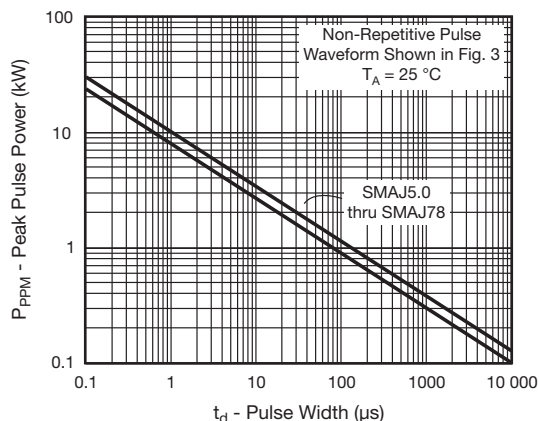


Fig. 1 - Peak Pulse Power Rating Curve

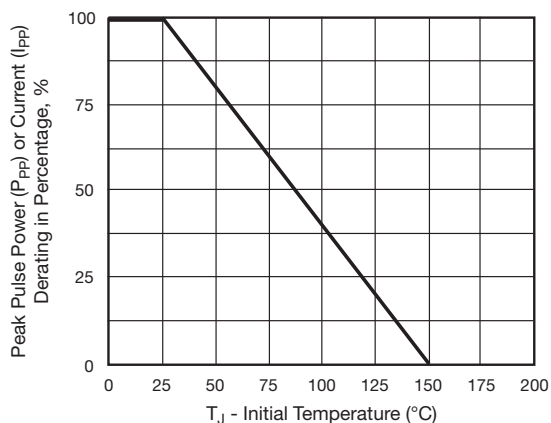


Fig. 2 - Pulse Power or Current vs. Initial Junction Temperature

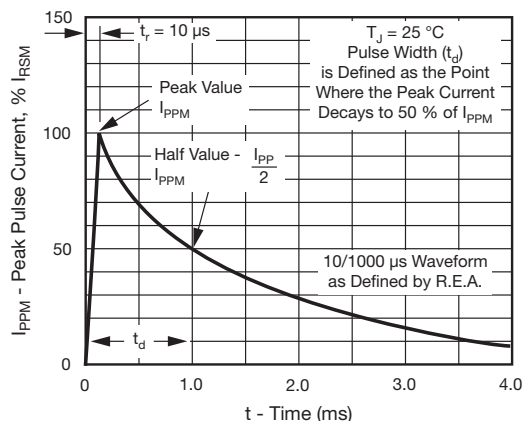


Fig. 3 - Pulse Waveform

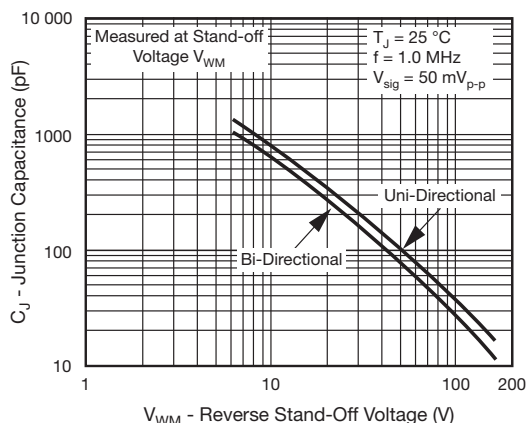


Fig. 4 - Typical Junction Capacitance

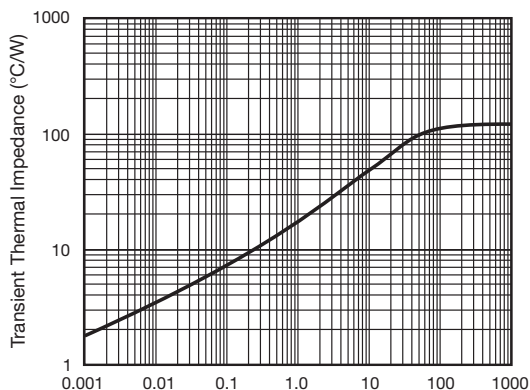


Fig. 5 - Typical Transient Thermal Impedance

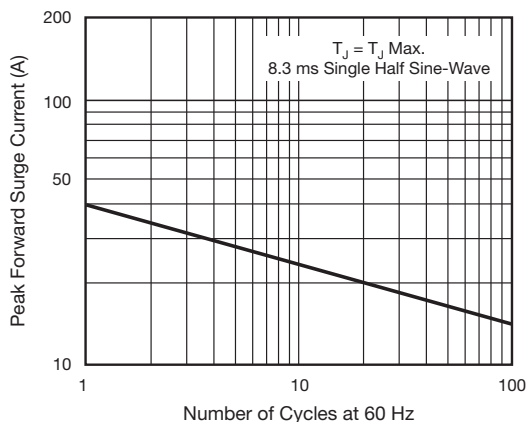


Fig. 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

Attention:

The graph is for reference only, can't be the basis for judgment.

Any and all information described or contained herein are subject to change without notice due to product/technology improvement.