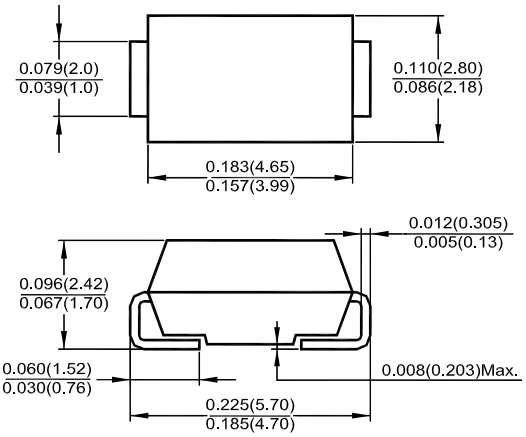
SMAJ Series

Surface Mount Transient Voltage Suppressors

Features

- Plastic package has UL Flammability Classification 94V-0
- Very fast reponse time

SMA (DO-214AC)



Dimensions in inches and (millimeters)

Mechanical Data

- Case: SMA(DO-214AC) molded plastic
- Polarity: Color band denotes cathode end except Bipolar
- Mounting Position: Any

Description

- Devices for bidirectional applications
- For bidirectional use CA suffix
- Electrical characteristics apply in both directions

Absolute Maximum Ratings (T_a = 25 °C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation with a 10/1000 μs Waveform [1]	P_{PPM}	400	W
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC Method) [2]	I_{FSM}	40	A
Maximum Instantaneous Forward Voltage (Unidirectional only) at 25 A	V_F	3.5	V
Operating Junction and Storage Temperature Range	T_j, T_{stg}	- 55 to + 150	°C

[1] Non-repetitive current pulse and derated above T_a = 25 °C.
[2] Mounted on copper lead area at 5 mm^2 (0.013 mm thick).

Electrical Characteristics (T_a = 25 °C unless otherwise specified)

Uni-directional / Bi-directional Type [3]	Stand-off Voltage V_{WM} (V)	Breakdown Voltage [1]		Test Current I_T (mA)	Maximum Clamping Voltage V_C (V) at I_{PPM}	Maximum Peak Pulse Current I_{PPM} (A)	Maximum Reverse Leakage [2] I_D (μA) at V_{WM}
		V_{BR} (V) Min. at I_T	V_{BR} (V) Max. at I_T				
SMAJ5.0 / C	5	6.4	7.82	10	9.6	41.7	800
SMAJ5.0A / CA	5	6.4	7.07	10	9.2	43.5	800
SMAJ6.0 / C	6	6.67	8.15	10	11.4	35.1	800
SMAJ6.0A / CA	6	6.67	7.37	10	10.3	38.8	800
SMAJ6.5 / C	6.5	7.22	8.82	10	12.3	32.5	500
SMAJ6.5A / CA	6.5	7.22	7.98	10	11.2	35.7	500
SMAJ7.0 / C	7	7.78	9.51	10	13.3	30.1	200
SMAJ7.0A / CA	7	7.78	8.6	10	12	33.3	200
SMAJ7.5 / C	7.5	8.33	10.2	1	14.3	28	100
SMAJ7.5A / CA	7.5	8.33	9.21	1	12.9	31	100
SMAJ8.0 / C	8	8.89	10.9	1	15	26.7	50
SMAJ8.0A / CA	8	8.89	9.83	1	13.6	29.4	50
SMAJ8.5 / C	8.5	9.44	11.5	1	15.9	25.2	10
SMAJ8.5A / CA	8.5	9.44	10.4	1	14.4	27.8	10
SMAJ9.0 / C	9	10	12.2	1	16.9	23.7	5
SMAJ9.0A / CA	9	10	11.1	1	15.4	26	5
SMAJ10 / C	10	11.1	13.6	1	18.8	21.3	1
SMAJ10A / CA	10	11.1	12.3	1	17	23.5	1
SMAJ11 / C	11	12.2	14.9	1	20.1	19.9	1
SMAJ11A / CA	11	12.2	13.5	1	18.2	22	1
SMAJ12 / C	12	13.3	16.3	1	22	18.2	1
SMAJ12A / CA	12	13.3	14.7	1	19.9	20.1	1
SMAJ13 / C	13	14.4	17.6	1	23.8	16.8	1
SMAJ13A / CA	13	14.4	15.9	1	21.5	18.6	1
SMAJ14 / C	14	15.6	19.1	1	25.8	15.5	1
SMAJ14A / CA	14	15.6	17.2	1	23.2	17.2	1
SMAJ15 / C	15	16.7	20.4	1	26.9	14.9	1
SMAJ15A / CA	15	16.7	18.5	1	24.4	16.4	1
SMAJ16 / C	16	17.8	21.8	1	28.8	13.9	1
SMAJ16A / CA	16	17.8	19.7	1	26	15.4	1
SMAJ17 / C	17	18.9	23.1	1	30.5	13.1	1
SMAJ17A / CA	17	18.9	20.9	1	27.6	14.5	1
SMAJ18 / C	18	20	24.4	1	32.2	12.4	1
SMAJ18A / CA	18	20	22.1	1	29.2	13.7	1
SMAJ20 / C	20	22.2	27.1	1	35.8	11.2	1
SMAJ20A / CA	20	22.2	24.5	1	32.4	12.3	1
SMAJ22 / C	22	24.4	29.8	1	39.4	10.2	1
SMAJ22A / CA	22	24.4	26.9	1	35.5	11.3	1
SMAJ24 / C	24	26.7	32.6	1	43	9.3	1
SMAJ24A / CA	24	26.7	29.5	1	38.9	10.3	1
SMAJ26 / C	26	28.9	35.3	1	46.6	8.6	1
SMAJ26A / CA	26	28.9	31.9	1	42.1	9.5	1
SMAJ28 / C	28	31.1	38	1	50	8	1
SMAJ28A / CA	28	31.1	34.4	1	45.4	8.8	1
SMAJ30 / C	30	33.3	40.7	1	53.5	7.5	1
SMAJ30A / CA	30	33.3	36.8	1	48.4	8.3	1
SMAJ33 / C	33	36.7	44.9	1	59	6.8	1
SMAJ33A / CA	33	36.7	40.6	1	53.3	7.5	1
SMAJ36 / C	36	40	48.9	1	64.3	6.2	1
SMAJ36A / CA	36	40	44.2	1	58.1	6.9	1
SMAJ40 / C	40	44.4	54.3	1	71.4	5.6	1
SMAJ40A / CA	40	44.4	49.1	1	64.5	6.2	1
SMAJ43 / C	43	47.8	58.4	1	76.7	5.2	1
SMAJ43A / CA	43	47.8	52.8	1	69.4	5.8	1

Electrical Characteristics (T_a = 25 °C unless otherwise specified)

Uni-directional / Bi-directional Type [3]	Stand-off Voltage V_{WM} (V)	Breakdown Voltage [1]		Test Current I_T (mA)	Maximum Clamping Voltage V_C (V) at I_{PPM}	Maximum Peak Pulse Current I_{PPM} (A)	Maximum Reverse Leakage [2] I_D (μA) at V_{WM}
		V_{BR} (V) Min. at I_T	V_{BR} (V) Max. at I_T				
SMAJ45 / C	45	50	61.1	1	80.3	5	1
SMAJ45A / CA	45	50	55.3	1	72.7	5.5	1
SMAJ48 / C	48	53.3	65.1	1	85.5	4.7	1
SMAJ48A / CA	48	53.3	58.9	1	77.4	5.2	1
SMAJ51 / C	51	56.7	69.3	1	91.1	4.4	1
SMAJ51A / CA	51	56.7	62.7	1	82.4	4.9	1
SMAJ54 / C	54	60	73.3	1	96.3	4.2	1
SMAJ54A / CA	54	60	66.3	1	87.1	4.6	1
SMAJ58 / C	58	64.4	78.7	1	103	3.9	1
SMAJ58A / CA	58	64.4	71.2	1	93.6	4.3	1
SMAJ60 / C	60	66.7	81.5	1	107	3.7	1
SMAJ60A / CA	60	66.7	73.7	1	96.8	4.1	1
SMAJ64 / C	64	71.1	86.9	1	114	3.5	1
SMAJ64A / CA	64	71.1	78.6	1	103	3.9	1
SMAJ70 / C	70	77.8	95.1	1	125	3.2	1
SMAJ70A / CA	70	77.8	86	1	113	3.5	1
SMAJ75 / C	75	83.3	102	1	134	3	1
SMAJ75A / CA	75	83.3	92.1	1	121	3.3	1
SMAJ78 / C	78	86.7	106	1	139	2.9	1
SMAJ78A / CA	78	86.7	95.8	1	126	3.2	1
SMAJ85 / C	85	94.4	115	1	151	2	1
SMAJ85A / CA	85	94.4	104	1	137	2.2	1
SMAJ90 / C	90	100	122	1	160	1.9	1
SMAJ90A / CA	90	100	111	1	146	2.1	1
SMAJ100 / C	100	111	136	1	179	1.7	1
SMAJ100A / CA	100	111	123	1	162	1.9	1
SMAJ110 / C	110	122	149	1	196	1.5	1
SMAJ110A / CA	110	122	135	1	177	1.7	1
SMAJ120 / C	120	133	163	1	214	1.4	1
SMAJ120A / CA	120	133	147	1	193	1.6	1
SMAJ130 / C	130	144	176	1	231	1.3	1
SMAJ130A / CA	130	144	159	1	209	1.4	1
SMAJ150 / C	150	167	204	1	268	1.1	1
SMAJ150A / CA	150	167	185	1	243	1.2	1
SMAJ160 / C	160	178	218	1	287	1	1
SMAJ160A / CA	160	178	197	1	259	1.2	1
SMAJ170 / C	170	189	231	1	304	0.99	1
SMAJ170A / CA	170	189	209	1	275	1.09	1
SMAJ180A/CA	180	201	222	1	292	1.4	1
SMAJ188/C	188	209	255	1	344	0.9	1
SMAJ188A/CA	188	209	231	1	328	0.91	1
SMAJ200A/CA	200	224	247	1	324	1.2	1
SMAJ220A/CA	220	246	272	1	356	1.1	1
SMAJ250A/CA	250	279	309	1	405	1	1
SMAJ300A/CA	300	335	371	1	486	0.8	1
SMAJ350A/CA	350	391	432	1	567	0.7	1
SMAJ400A/CA	400	447	494	1	648	0.6	1
SMAJ440A/CA	440	492	543	1	713	0.6	1

[1] V_{BR} measured after I_T applied for 300 μs square wave pulse or equivalent.

[2] For bidirectional types having V_{RWM} of 10 V and less, the I_D limit is doubled.

[3] For bidirectional use C or CA suffix types, the electrical characteristics apply in both directions.

Fig. 1 – Peak Pulse Power Rating Curve

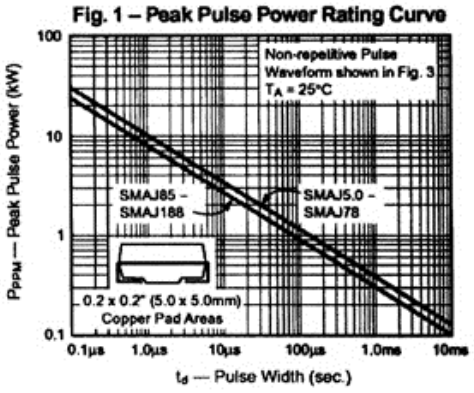


Fig. 2 – Pulse Derating Curve

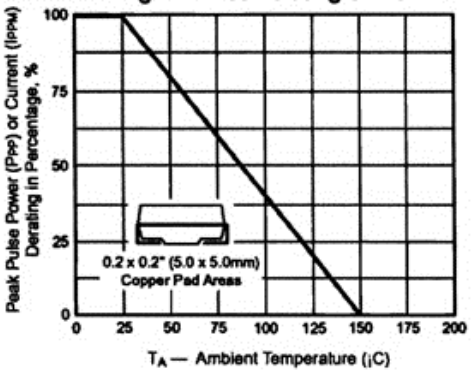


Fig. 3 – Pulse Waveform

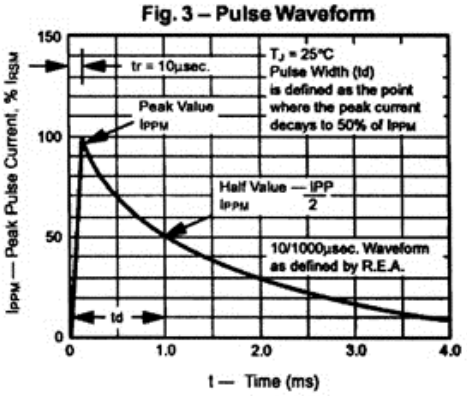


Fig. 4 – Typical Junction Capacitance

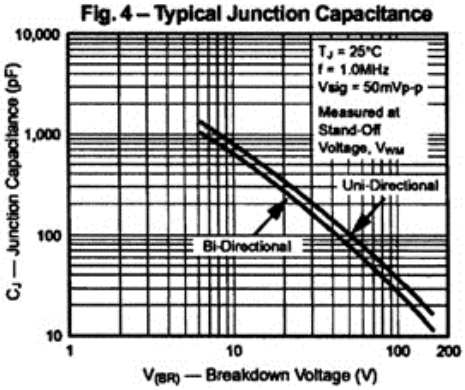


Fig. 5 – Typical Transient Thermal Impedance

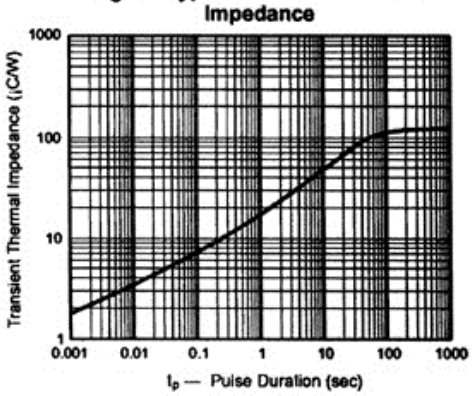


Fig. 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only