New Jersey Semi-Conductor Products, Inc.

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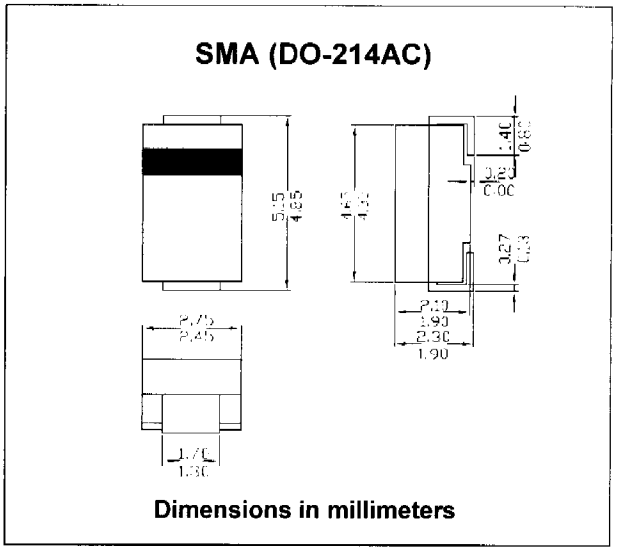
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SMAJ5.0 ~ 188A

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

Stand-off Voltage : 5.0 to 188V

Peak Pulse Power : 400 W



Dimensions in millimeters

FEATURES :

* 400W peak pulse power capability with a 10/1000μs waveform
* Optimized for LAN protection applications
* Low clamping
* Very fast response time
* Pb / RoHS Free

MECHANICAL DATA

* Case : SMA Molded plastic
* Epoxy : UL94V-0 rate flame retardant
* Lead : Lead Formed for Surface Mount
* Polarity : Color band denotes cathode end except Bipolar.
* Mounting position : Any
* Weight : 0.064 grams

DEVICES FOR BIPOLAR APPLICATIONS

For Bi-directional use C or CA Suffix
Electrical characteristics apply in both directions

MAXIMUM RATINGS

Rating at 25°C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Units
Peak Pulse Power Dissipation (Note1,2,4) Fig. 4	P_{PPM}	Minimum 400	W
Peak Pulse Current on 10/1000μs waveform (Note 1, Fig. 1)	I_{PPM}	See Table	A
Maximum Instantaneous Forward Voltage at I_F = 25A	V_{FM}	3.5	V
Typical thermal resistance, junction to ambient	$R_{\Theta JA}$	120	°C/W
Typical thermal resistance, junction to leads	$R_{\Theta JL}$	30	°C/W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	- 55 to + 150	°C

Notes :

(1) Non-repetitive Current pulse, per Fig. 3 and derated above Ta = 25 °C per Fig. 1
(2) Mounted on 0.2 x 0.2"(5.0 x 5.0 mm) copper pads to each terminal.
(3) Peak pulse power waveform is 10/1000μs.

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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)	(μA)	(A)	(V)
SMAJ5.0	6.40	7.82	10	5.0	800	41.7	9.6
SMAJ5.0A[4]	6.40	7.07	10	5.0	800	43.5	9.2
SMAJ6.0	6.67	8.15	10	6.0	800	35.1	11.4
SMAJ6.0A	6.67	7.37	10	6.0	800	38.8	10.3
SMAJ6.5	7.22	8.82	10	6.5	500	32.5	12.3
SMAJ6.5A	7.22	7.98	10	6.5	500	35.7	11.2
SMAJ7.0	7.78	9.51	10	7.0	200	30.1	13.3
SMAJ7.0A	7.78	8.6	10	7.0	200	33.3	12.0
SMAJ7.5	8.33	10.2	1.0	7.5	100	28.0	14.3
SMAJ7.5A	8.33	9.21	1.0	7.5	100	31.0	12.9
SMAJ8.0	8.89	10.9	1.0	8.0	50	26.7	15.0
SMAJ8.0A	8.89	9.83	1.0	8.0	50	29.4	13.6
SMAJ8.5	9.44	11.5	1.0	8.5	10	25.2	15.9
SMAJ8.5A	9.44	10.4	1.0	8.5	10	27.8	14.4
SMAJ9.0	10.0	12.2	1.0	9.0	5.0	23.7	16.9
SMAJ9.0A	10.0	11.1	1.0	9.0	5.0	26.0	15.4
SMAJ10	11.1	13.6	1.0	10	1.0	21.2	18.8
SMAJ10A	11.1	12.3	1.0	10	1.0	23.5	17.0
SMAJ11	12.2	14.9	1.0	11	1.0	19.9	20.1
SMAJ11A	12.2	13.5	1.0	11	1.0	22.0	18.2
SMAJ12	13.3	16.3	1.0	12	1.0	18.2	22.0
SMAJ12A	13.3	14.7	1.0	12	1.0	20.1	19.9
SMAJ13	14.4	17.6	1.0	13	1.0	16.8	23.8
SMAJ13A	14.4	15.9	1.0	13	1.0	18.6	21.5
SMAJ14	15.6	19.1	1.0	14	1.0	15.5	25.8
SMAJ14A	15.6	17.2	1.0	14	1.0	17.2	23.2
SMAJ15	16.7	20.4	1.0	15	1.0	14.8	26.9
SMAJ15A	16.7	18.5	1.0	15	1.0	16.4	24.4
SMAJ16	17.8	21.8	1.0	16	1.0	13.9	28.8
SMAJ16A	17.8	19.7	1.0	16	1.0	15.4	26.0
SMAJ17	18.9	23.1	1.0	17	1.0	13.1	30.5
SMAJ17A	18.9	20.9	1.0	17	1.0	14.5	27.6
SMAJ18	20.0	24.4	1.0	18	1.0	12.4	32.2
SMAJ18A	20.0	22.1	1.0	18	1.0	13.7	29.2
SMAJ20	22.2	27.1	1.0	20	1.0	11.2	35.8
SMAJ20A	22.2	24.5	1.0	20	1.0	12.3	32.4
SMAJ22	24.4	29.8	1.0	22	1.0	10.2	39.4
SMAJ22A	24.4	26.9	1.0	22	1.0	11.3	35.5
SMAJ24	26.7	32.6	1.0	24	1.0	9.3	43.0
SMAJ24A	26.7	29.5	1.0	24	1.0	10.3	38.9
SMAJ26	28.9	35.3	1.0	26	1.0	8.6	46.6
SMAJ26A	28.9	31.9	1.0	26	1.0	9.5	42.1
SMAJ28	31.1	38.0	1.0	28	1.0	8.0	50.0
SMAJ28A	31.1	34.4	1.0	28	1.0	8.8	45.4
SMAJ30	33.3	40.7	1.0	30	1.0	7.5	53.5
SMAJ30A	33.3	36.8	1.0	30	1.0	8.3	48.4
SMAJ33	36.7	44.9	1.0	33	1.0	6.8	59.0
SMAJ33A	36.7	40.6	1.0	33	1.0	7.5	53.3
SMAJ36	40.0	48.9	1.0	36	1.0	6.2	64.3
SMAJ36A	40.0	44.2	1.0	36	1.0	6.9	58.1

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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)	(μA)	(A)	(V)
SMAJ40	44.4	54.3	1.0	40	1.0	5.6	71.4
SMAJ40A	44.4	49.1	1.0	40	1.0	6.2	64.5
SMAJ43	47.8	58.4	1.0	43	1.0	5.2	76.7
SMAJ43A	47.8	52.8	1.0	43	1.0	5.7	69.4
SMAJ45	50.0	61.1	1.0	45	1.0	5.0	80.3
SMAJ45A	50.0	55.3	1.0	45	1.0	5.5	72.7
SMAJ48	53.3	65.1	1.0	48	1.0	4.7	85.5
SMAJ48A	53.3	58.9	1.0	48	1.0	5.2	77.4
SMAJ51	56.7	69.3	1.0	51	1.0	4.4	91.1
SMAJ51A	56.7	62.7	1.0	51	1.0	4.9	82.4
SMAJ54	60.0	73.3	1.0	54	1.0	4.2	96.3
SMAJ54A	60.0	66.3	1.0	54	1.0	4.6	87.1
SMAJ58	64.4	78.7	1.0	58	1.0	3.9	103
SMAJ58A	64.4	71.2	1.0	58	1.0	4.3	93.6
SMAJ60	66.7	81.5	1.0	60	1.0	3.7	107
SMAJ60A	66.7	73.7	1.0	60	1.0	4.1	96.8
SMAJ64	71.1	86.4	1.0	64	1.0	3.5	114
SMAJ64A	71.1	78.6	1.0	64	1.0	3.9	103
SMAJ70	77.8	95.1	1.0	70	1.0	3.2	125
SMAJ70A	77.8	86	1.0	70	1.0	3.5	113
SMAJ75	83.3	102	1.0	75	1.0	3.0	134
SMAJ75A	83.3	92.1	1.0	75	1.0	3.3	121
SMAJ78	86.7	106	1.0	78	1.0	2.9	139
SMAJ78A	86.7	95.8	1.0	78	1.0	3.2	126
SMAJ85	94.4	115	1.0	85	1.0	2.0	151
SMAJ85A	94.4	104	1.0	85	1.0	2.2	137
SMAJ90	100	122	1.0	90	1.0	1.9	160
SMAJ90A	100	111	1.0	90	1.0	2.1	146
SMAJ100	111	136	1.0	100	1.0	1.7	179
SMAJ100A	111	123	1.0	100	1.0	1.9	162
SMAJ110	122	149	1.0	110	1.0	1.5	196
SMAJ110A	122	135	1.0	110	1.0	1.7	177
SMAJ120	133	163	1.0	120	1.0	1.4	214
SMAJ120A	133	147	1.0	120	1.0	1.6	193
SMAJ130	144	176	1.0	130	1.0	1.3	231
SMAJ130A	144	159	1.0	130	1.0	1.4	209
SMAJ150	167	204	1.0	150	1.0	1.1	268
SMAJ150A	167	185	1.0	150	1.0	1.2	243
SMAJ160	178	218	1.0	160	1.0	1.0	287
SMAJ160A	178	197	1.0	160	1.0	1.2	259
SMAJ170	189	231	1.0	170	1.0	0.99	304
SMAJ170A	189	209	1.0	170	1.0	1.09	275
SMAJ188	209	255	1.0	188	1.0	0.90	344
SMAJ188A	209	231	1.0	188	1.0	0.91	328

Notes:

(1) Pulse test : tp ≤ 50ms.
(2) For bidirectional use C or CA suffix.
(3) For bi-directional types have V_{WM} of 10 Volts and less , the I_D limit is doubled
(4) For the bi-directional SMAJ5.0CA, the maximum V_{BR} is 7.25V
(5) "SMAJ" will be omitted in marking on the diode.

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RATING AND CHARACTERISTIC CURVES (SMAJ5.0 - SMAJ188A)

FIG.1 - PULSE DERATING CURVE

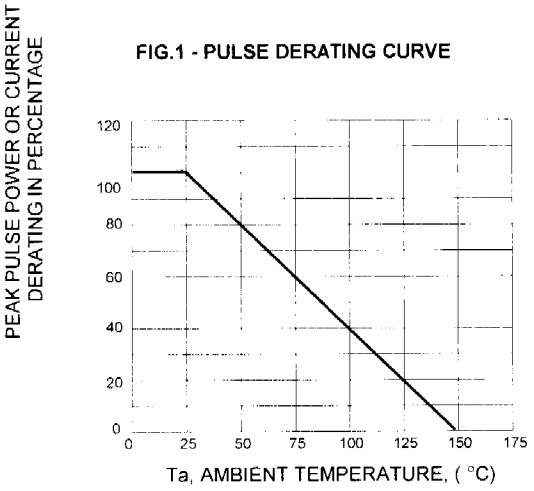


FIG.2 - TYPICAL JUNCTION CAPACITANCE

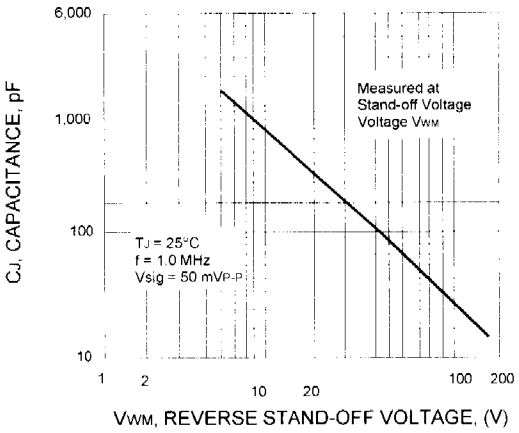


FIG.3 - PULSE WAVEFORM

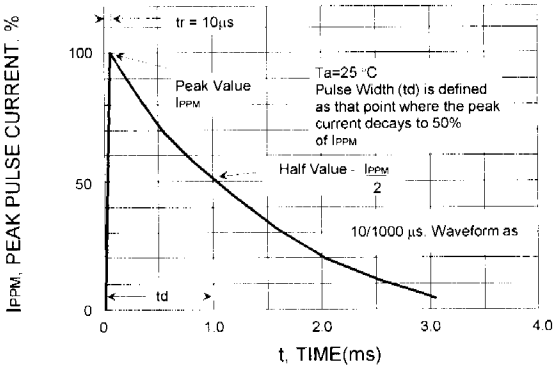
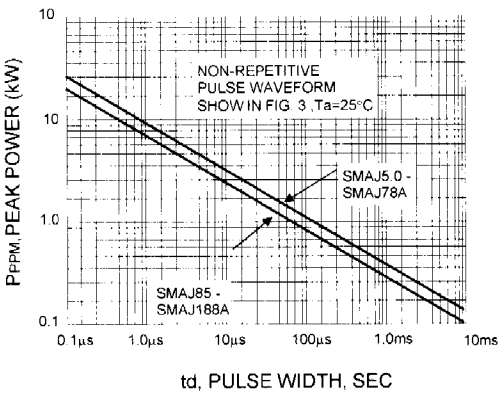


FIG.4 - PEAK PULSE POWER RATING CURVE



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