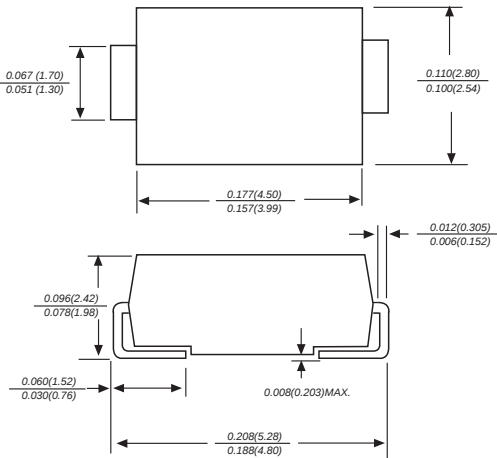


SMAJ5.0 THRU SMAJ170CA

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

Stand-off Voltage: 5.0-170 Volts Peak pulse power: 400 Watts

DO-214AC



FEATURE

- ◆ Optimized for LAN protection applications
- ◆ Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ◆ Glass passivated junction
- ◆ 400w peak pulse power capability
- ◆ Excellent clamping capability
- ◆ Low incremental surge resistance
- ◆ Fast response time: typically less than 1.0ps from 0v to $V_{(BR)}$ min
- ◆ High temperature soldering guaranteed: 260°C/10S at terminals

MECHANICAL DATA

Case: JEDEC DO-214AC molded plastic body over passivated chip

Terminals: Solder plated , solderable per MIL-STD 750, method 2026

Polarity: Color band denotes cathode except for bidirectional types

Mounting Position: Any

Weight: 0.002 ounce, 0.07 grams

DEVICES FOR BIDIRECTIONAL APPLICATIONS

For bidirectional use suffix C or CA for types SMAJ5.0 thru SMAJ170 (e.g. SMAJ5.0C, SMAJ170CA)
Electrical characteristics apply in both directions.

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

	SYMBOLS	VALUE	UNITS
Peak pulse power dissipation with a 10/1000μs wavetorm(NOTE 1,2,4,FIG.1)	P _{PPM}	Minimum 400	Watts
Peak forward surge current (Note 3)	I _{FSM}	40.0	Amps
Peak pulse current with a 10/1000μs waveform(NOTE 1)	I _{PPM}	See Table 1	Amps
Operating junction and storage temperature range	T _{STG} , T _J	-55 to + 150	°C

- Notes:** 1.Non-repetitive current pulse,per Fig.3 and derated above T_A=25°C per Fig.2
2.Mounted on 5.0mm² copper pads to each terminal
3.Measured on 8.3ms single half sine-wine.For uni-directional devices only.
4.Peak pulse power waveform is 10/1000μs

ELECTRICAL CHARACTERISTICS (at TA=25°C unless otherwise noted)

Device	Working Peak Reverse Voltage V _{WM} (Volts)	Breakdown Voltage V _(BR) (Volts) at I _T		Test Current I _T (mA)	Maximum Clamping Voltage at I _{PPM} V _C (Volts)(NOTES)	Maximum Peak Pulse Reverse Current I _{PPM} (NOTE5) (Amps)	Maximum Reverse Leakage a V _{WM} I _D (μA)
		MIN	MAX				
SMAJ5.0	5.0	6.40	7.81	10	9.6	41.7	800
SMAJ5.0A	5.0	6.40	7.08	10	9.2	43.5	800
SMAJ6.0	6.0	6.67	8.15	10	11.4	35.1	800
SMAJ6.0A	6.0	6.67	7.37	10	10.3	38.8	800
SMAJ6.5	6.5	7.22	8.82	10	12.3	32.5	500
SMAJ6.5A	6.5	7.22	7.98	10	11.2	35.7	500
SMAJ7.0	7.0	7.78	9.51	10	13.3	30.1	200
SMAJ7.0A	7.0	7.78	8.60	10	12.0	33.3	200
SMAJ7.5	7.5	8.33	10.3	1.0	14.3	28.0	100
SMAJ7.5A	7.5	8.33	9.21	1.0	12.9	31.0	100
SMAJ8.0	8.0	8.89	10.9	1.0	15.0	26.7	50.0
SMAJ8.0A	8.0	8.89	9.83	1.0	13.6	29.4	50.0
SMAJ8.5	8.5	9.44	11.5	1.0	15.9	25.2	10.0
SMAJ8.5A	8.5	9.44	10.4	1.0	14.4	27.8	10.0
SMAJ9.0	9.0	10.0	12.2	1.0	16.9	23.7	5.0
SMAJ9.0A	9.0	10.0	11.1	1.0	15.4	26.0	5.0
SMAJ10	10.00	11.1	13.6	1.0	18.8	21.3	5.0
SMAJ10A	10.00	11.1	12.3	1.0	17.0	23.5	5.0
SMAJ11	11.00	12.2	14.9	1.0	20.1	19.9	5.0
SMAJ11A	11.00	12.2	13.5	1.0	18.2	22.0	5.0
SMAJ12	12.00	13.3	16.3	1.0	22.0	18.2	5.0
SMAJ12A	12.00	13.3	14.7	1.0	19.9	20.1	5.0
SMAJ13	13.00	14.4	17.6	1.0	23.8	16.8	5.0
SMAJ13A	13.00	14.4	15.9	1.0	21.5	18.6	5.0
SMAJ14	14.00	15.6	19.1	1.0	25.8	15.5	5.0
SMAJ14A	14.00	15.6	17.2	1.0	23.2	17.2	5.0
SMAJ15	15.00	16.7	20.4	1.0	26.9	14.9	5.0
SMAJ15A	15.00	16.7	18.5	1.0	24.4	16.4	5.0
SMAJ16	16.00	17.8	21.8	1.0	28.8	13.9	5.0
SMAJ16A	16.00	17.8	19.7	1.0	26.0	15.4	5.0
SMAJ17	17.00	18.9	23.1	1.0	30.5	13.1	5.0
SMAJ17A	17.00	18.9	20.9	1.0	27.6	14.5	5.0
SMAJ18	18.00	20.0	24.4	1.0	32.2	12.4	5.0
SMAJ18A	18.00	20.0	22.1	1.0	29.2	13.7	5.0
SMAJ20	20.00	22.2	27.1	1.0	35.8	11.2	5.0
SMAJ20A	20.00	22.2	24.5	1.0	32.4	12.3	5.0
SMAJ22	22.00	24.4	29.8	1.0	39.4	10.2	5.0
SMAJ22A	22.00	24.4	26.9	1.0	35.5	11.3	5.0
SMAJ24	24.00	26.7	32.6	1.0	43.0	9.3	5.0
SMAJ24A	24.00	26.7	29.5	1.0	38.9	10.3	5.0
SMAJ26	26.00	28.9	35.3	1.0	46.6	8.6	5.0
SMAJ26A	26.00	28.9	31.9	1.0	42.1	9.5	5.0
SMAJ28	28.00	31.1	38.0	1.0	50.0	8.0	5.0
SMAJ28A	28.00	31.1	34.4	1.0	45.4	8.8	5.0
SMAJ30	30.00	33.3	40.7	1.0	53.5	7.5	5.0
SMAJ30A	30.00	33.3	36.8	1.0	48.4	8.3	5.0

ELECTRICAL CHARACTERISTICS (at TA=25°C unless otherwise noted)

Device	Working Peak Reverse Voltage V _{WM} (Volts)	Breakdown Voltage V _(BR) (Volts) at I _r		Test Current I _r (mA)	Maximum Clamping Voltage at I _{PPM} V _C (Volts)(NOTE5)	Maximum Peak Pulse Reverse Current I _{PPM} (NOTE5) (Amps)	Maximum Reverse Leakage a V _{WM} I _D (μ A)
		MIN	MAX				
SMAJ33	33.00	36.7	44.9	1.0	59.0	5.1	5.0
SMAJ33A	33.00	36.7	40.6	1.0	53.3	5.6	5.0
SMAJ36	36.00	40.0	48.9	1.0	64.3	4.7	5.0
SMAJ36A	36.00	40.0	44.2	1.0	58.1	5.2	5.0
SMAJ40	40.00	44.4	54.3	1.0	71.4	4.2	5.0
SMAJ40A	40.00	44.4	49.1	1.0	64.5	4.7	5.0
SMAJ43	43.00	47.8	58.4	1.0	76.7	3.9	5.0
SMAJ43A	43.00	47.8	52.8	1.0	69.4	4.3	5.0
SMAJ45	45.00	50.0	61.1	1.0	80.3	3.7	5.0
SMAJ45A	45.00	50.0	55.3	1.0	72.7	4.1	5.0
SMAJ48	48.00	53.3	65.1	1.0	85.5	3.5	5.0
SMAJ48A	48.00	53.3	58.9	1.0	77.4	3.9	5.0
SMAJ51	51.00	56.7	69.3	1.0	91.1	3.3	5.0
SMAJ51A	51.00	56.7	62.7	1.0	82.4	3.6	5.0
SMAJ54	54.00	60.0	73.3	1.0	96.3	3.1	5.0
SMAJ54A	54.00	60.0	66.3	1.0	87.1	3.4	5.0
SMAJ58	58.00	64.4	78.7	1.0	103.0	2.9	5.0
SMAJ58A	58.00	64.4	71.2	1.0	93.6	3.2	5.0
SMAJ60	60.00	66.7	81.5	1.0	107.0	2.8	5.0
SMAJ60A	60.00	66.7	73.7	1.0	96.8	3.1	5.0
SMAJ64	64.00	71.1	86.4	1.0	114.0	2.6	5.0
SMAJ64A	64.00	71.1	78.6	1.0	103.0	2.9	5.0
SMAJ70	70.00	77.8	95.1	1.0	125	2.4	5.0
SMAJ70A	70.00	77.8	86.0	1.0	113	2.7	5.0
SMAJ75	75.00	83.3	102	1.0	134	2.2	5.0
SMAJ75A	75.00	83.3	92.1	1.0	121	2.5	5.0
SMAJ78	78.00	86.7	106	1.0	139	2.2	5.0
SMAJ78A	78.00	86.7	95.8	1.0	126	2.4	5.0
SMAJ85	85.00	94.4	115	1.0	151	2.0	5.0
SMAJ85A	85.00	94.4	104	1.0	137	2.2	5.0
SMAJ90	90.00	100	122	1.0	160	1.9	5.0
SMAJ90A	90.00	100	111	1.0	146	2.1	5.0
SMAJ100	100.00	111	136	1.0	179	1.7	5.0
SMAJ100A	100.00	111	123	1.0	162	1.9	5.0
SMAJ110	110.00	122	149	1.0	196	1.5	5.0
SMAJ110A	110.00	122	135	1.0	177	1.7	5.0
SMAJ120	120.00	133	163	1.0	214	1.4	5.0
SMAJ120A	120.00	133	147	1.0	193	1.6	5.0
SMAJ130	130.00	144	176	1.0	231	1.3	5.0
SMAJ130A	130.00	144	159	1.0	209	1.4	5.0
SMAJ150	150.00	167	204	1.0	268	1.1	5.0
SMAJ150A	150.00	167	185	1.0	243	1.2	5.0
SMAJ160	160.00	178	218	1.0	287	1.0	5.0
SMAJ160A	160.00	178	197	1.0	259	1.2	5.0
SMAJ170	170.00	189	231	1.0	304	0.99	5.0
SMAJ170A	170.00	189	209	1.0	275	1.09	5.0

NOTES:

- 1.V_(BR) measured after I_r applied for 300 μ s, I_r=square wave pulse or equivalent
- 2.Surge current waveform per Fig.3 and derated per Fig.2
- 3.For bidirectional types having V_{WM} of 10 volts and less, the I_D limit is doubled
- 4.All items and symbols are consistent with ANSI/IEEE C62.35
- 5.Peak pulse power waveform is 10/1000 μ s

RATINGS AND CHARACTERISTIC CURVES SMAJ5.0 THUR SMAJ170CA

FIG.1 – PEAK PULSE POWER RATING CURVE

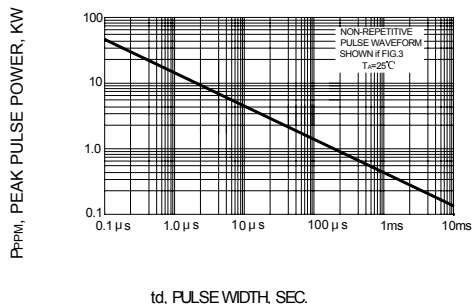


FIG.2 – PULSE DERATING CURVE

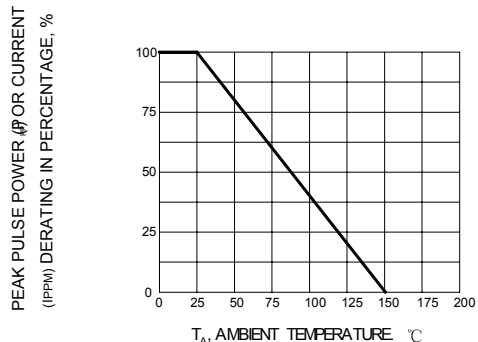


FIG.3 – PULSE WAVEFORM

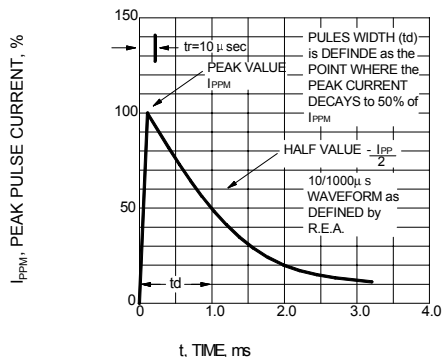


FIG.4 – TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL

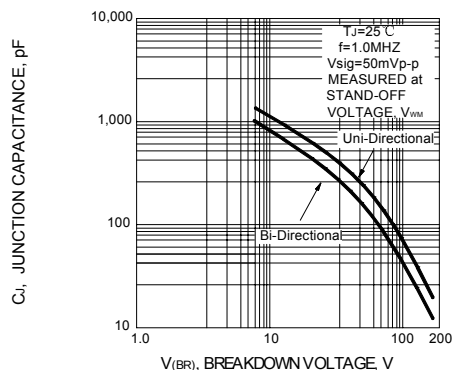


FIG.5 – TYPICAL TRANSIENT THERMAL IMPEDANCE

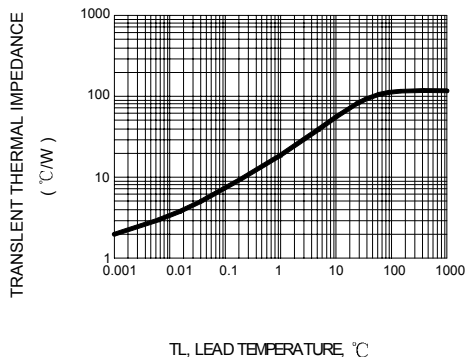


FIG.6 – MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL ONLY

