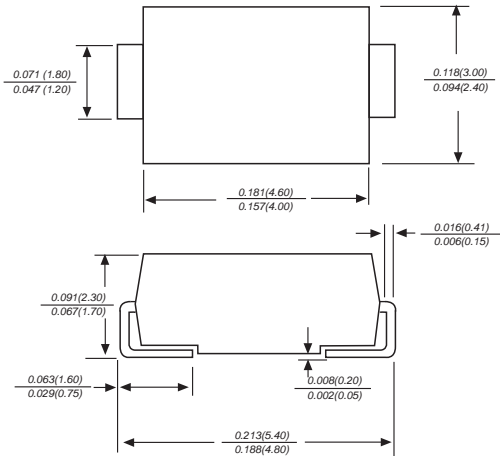


SMAJ5.0 THRU SMAJ170CA

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

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

DO-214AC



Dimensions in inches and (millimeters)

FEATURE

- ◆ Optimized for LAN protection applications
- ◆ Ideal for ESD protection of data lines in accordance with IEC 1000-4-2(IEC801-2)
- ◆ Ideal for EFT protection of data lines in accordance with IEC1000-4-4(IEC801-2)
- ◆ 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: 0.003 ounce, 0.093 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 1,2,5,FIG.1)	P _{PPM}	Minimum 400	Watts
Peak forward surge current (Note 4)	I _{FSM}	40.0	Amps
Peak pulse current with a 10/1000μs waveform(NOTE 1)	I _{PPM}	See Table 1	Amps
Steady state power dissipation (Note 3)	P _{M(AV)}	1.0	Watts
Maximum instantaneous forward voltage at 25A(Note 4)	V _F	3.5	Volts
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.Lead temperature at T_L=75°C per Fig.5
 - 4.Measured on 8.3ms single half sine-wine.For uni-directional devices only.
 - 5.Peak pulse power waveform is 10/1000μs

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

Type Number		Reverse Stand-Off Voltage	Breakdown Voltage Min. @I _T	Breakdown Voltage Max. @ I _T	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RMW}
(Uni)	(Bi)	RMW(V)	V _{BR MIN} (V)	V _{BR MAX} (V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (uA)
SMAJ5.0	SMAJ5.0C	5.0	6.40	7.55	10.0	9.6	41.7	800.0
SMAJ5.0A	SMAJ5.0CA	5.0	6.40	7.25	10.0	9.2	43.5	800.0
SMAJ6.0	SMAJ6.0C	6.0	6.67	8.45	10.0	11.4	35.1	800.0
SMAJ6.0A	SMAJ6.0CA	6.0	6.67	7.67	10.0	10.3	38.8	800.0
SMAJ6.5	SMAJ6.5C	6.5	7.22	9.14	10.0	12.3	32.5	500.0
SMAJ6.5A	SMAJ6.5CA	6.5	7.22	8.30	10.0	11.2	35.7	500.0
SMAJ7.0	SMAJ7.0C	7.0	7.78	9.86	10.0	13.3	30.1	200.0
SMAJ7.0A	SMAJ7.0CA	7.0	7.78	8.95	10.0	12.0	33.3	200.0
SMAJ7.5	SMAJ7.5C	7.5	8.33	10.67	1.0	14.3	28.0	100.0
SMAJ7.5A	SMAJ7.5CA	7.5	8.33	9.58	1.0	12.9	31.0	100.0
SMAJ8.0	SMAJ8.0C	8.0	8.89	11.3	1.0	15.0	26.7	50.0
SMAJ8.0A	SMAJ8.0CA	8.0	8.89	10.23	1.0	13.6	29.4	50.0
SMAJ8.5	SMAJ8.5C	8.5	9.44	11.92	1.0	15.9	25.2	20.0
SMAJ8.5A	SMAJ8.5CA	8.5	9.44	10.82	1.0	14.4	27.8	20.0
SMAJ9.0	SMAJ9.0C	9.0	10.0	12.6	1.0	16.9	23.7	10.0
SMAJ9.0A	SMAJ9.0CA	9.0	10.0	11.5	1.0	15.4	26.0	10.0
SMAJ10	SMAJ10C	10	11.1	14.1	1.0	18.8	21.3	5.0
SMAJ10A	SMAJ10CA	10	11.1	12.8	1.0	17.0	23.5	5.0
SMAJ11	SMAJ11C	11	12.2	15.4	1.0	20.1	19.9	5.0
SMAJ11A	SMAJ11CA	11	12.2	14.0	1.0	18.2	22.0	5.0
SMAJ12	SMAJ12C	12	13.3	16.9	1.0	22.0	18.2	5.0
SMAJ12A	SMAJ12CA	12	13.3	15.3	1.0	19.9	20.1	5.0
SMAJ13	SMAJ13C	13	14.4	18.2	1.0	23.8	16.8	5.0
SMAJ13A	SMAJ13CA	13	14.4	16.5	1.0	21.5	18.6	5.0
SMAJ14	SMAJ14C	14	15.6	19.8	1.0	25.8	15.5	5.0
SMAJ14A	SMAJ14CA	14	15.6	17.9	1.0	23.2	17.2	5.0
SMAJ15	SMAJ15C	15	16.7	21.1	1.0	26.9	14.9	5.0
SMAJ15A	SMAJ15CA	15	16.7	19.2	1.0	24.4	16.4	5.0
SMAJ16	SMAJ16C	16	17.8	22.6	1.0	28.8	13.9	5.0
SMAJ16A	SMAJ16CA	16	17.8	20.5	1.0	26.0	15.4	5.0
SMAJ17	SMAJ17C	17	18.9	23.9	1.0	30.5	13.1	5.0
SMAJ17A	SMAJ17CA	17	18.9	21.7	1.0	27.6	14.5	5.0

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

Type Number		Reverse Stand-Off Voltage	Breakdown Voltage Min. @I _T	Breakdown Voltage Max. @ I _T	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RMW}
(Uni)	(Bi)	RMW(V)	V _{BR MIN} (V)	V _{BR MAX} (V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (uA)
SMAJ18	SMAJ18C	18	20.0	25.3	1.0	32.2	12.4	5.0
SMAJ18A	SMAJ18CA	18	20.0	23.3	1.0	29.2	13.7	5.0
SMAJ20	SMAJ20C	20	22.2	28.1	1.0	35.8	11.2	5.0
SMAJ20A	SMAJ20CA	20	22.2	25.5	1.0	32.4	12.3	5.0
SMAJ22	SMAJ22C	22	24.4	30.9	1.0	39.4	10.2	5.0
SMAJ22A	SMAJ22CA	22	24.4	28.0	1.0	35.5	11.3	5.0
SMAJ24	SMAJ24C	24	26.7	33.8	1.0	43.0	9.3	5.0
SMAJ24A	SMAJ24CA	24	26.7	30.7	1.0	38.9	10.3	5.0
SMAJ26	SMAJ26C	26	28.9	36.6	1.0	46.6	8.6	5.0
SMAJ26A	SMAJ26CA	26	28.9	33.2	1.0	42.1	9.5	5.0
SMAJ28	SMAJ28C	28	31.1	39.4	1.0	50.0	8.0	5.0
SMAJ28A	SMAJ28CA	28	31.1	35.8	1.0	45.4	8.8	5.0
SMAJ30	SMAJ30C	30	33.3	42.2	1.0	53.5	7.5	5.0
SMAJ30A	SMAJ30CA	30	33.3	38.3	1.0	48.4	8.3	5.0
SMAJ33	SMAJ33C	33	36.7	46.5	1.0	59.0	6.8	5.0
SMAJ33A	SMAJ33CA	33	36.7	42.2	1.0	53.3	7.5	5.0
SMAJ36	SMAJ36C	36	40.0	50.7	1.0	64.3	6.2	5.0
SMAJ36A	SMAJ36CA	36	40.0	46.0	1.0	58.1	6.9	5.0
SMAJ40	SMAJ40C	40	44.4	56.3	1.0	71.4	5.6	5.0
SMAJ40A	SMAJ40CA	40	44.4	51.1	1.0	64.5	6.2	5.0
SMAJ43	SMAJ43C	43	47.8	60.5	1.0	76.7	5.2	5.0
SMAJ43A	SMAJ43CA	43	47.8	54.9	1.0	69.4	5.8	5.0
SMAJ45	SMAJ45C	45	50.0	63.3	1.0	80.3	5.0	5.0
SMAJ45A	SMAJ45CA	45	50.0	57.5	1.0	72.7	5.5	5.0
SMAJ48	SMAJ48C	48	53.3	67.5	1.0	85.5	4.7	5.0
SMAJ48A	SMAJ48CA	48	53.3	61.3	1.0	77.4	5.2	5.0
SMAJ51	SMAJ51C	51	56.7	71.8	1.0	91.1	4.4	5.0
SMAJ51A	SMAJ51CA	51	56.7	65.2	1.0	82.4	4.9	5.0
SMAJ54	SMAJ54C	54	60.0	76.0	1.0	96.3	4.2	5.0
SMAJ54A	SMAJ54CA	54	60.0	69.0	1.0	87.1	4.6	5.0
SMAJ58	SMAJ58C	58	64.4	81.6	1.0	103	3.9	5.0
SMAJ58A	SMAJ58CA	58	64.4	74.1	1.0	93.6	4.3	5.0

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

Type Number		Reverse Stand-Off Voltage	Breakdown Voltage Min. @I _T	Breakdown Voltage Max. @ I _T	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RMW}
(Uni)	(Bi)	RMW(V)	V _{BR MIN} (V)	V _{BR MAX} (V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (uA)
SMAJ60	SMAJ60C	60	66.7	84.5	1.0	107	3.7	5.0
SMAJ60A	SMAJ60CA	60	66.7	76.7	1.0	96.8	4.1	5.0
SMAJ64	SMAJ64C	64	71.1	90.1	1.0	114	3.5	5.0
SMAJ64A	SMAJ64CA	64	71.1	81.8	1.0	103	3.9	5.0
SMAJ70	SMAJ70C	70	77.8	98.6	1.0	125	3.2	5.0
SMAJ70A	SMAJ70CA	70	77.8	89.5	1.0	113	3.5	5.0
SMAJ75	SMAJ75C	75	83.0	105.7	1.0	134	3.0	5.0
SMAJ75A	SMAJ75CA	75	83.0	95.8	1.0	121	3.3	5.0
SMAJ78	SMAJ78C	78	86.0	109.8	1.0	139	2.9	5.0
SMAJ78A	SMAJ78CA	78	86.0	99.7	1.0	126	3.2	5.0
SMAJ85	SMAJ85C	85	94.0	119.2	1.0	151	2.6	5.0
SMAJ85A	SMAJ85CA	85	94.0	108.2	1.0	137	2.9	5.0
SMAJ90	SMAJ90C	90	100	126.5	1.0	160	2.5	5.0
SMAJ90A	SMAJ90CA	90	100	115.5	1.0	146	2.7	5.0
SMAJ100	SMAJ100C	100	111	141.0	1.0	179	2.2	5.0
SMAJ100A	SMAJ100CA	100	111	128.0	1.0	162	2.5	5.0
SMAJ110	SMAJ110C	110	122	154.5	1.0	196	2.0	5.0
SMAJ110A	SMAJ110CA	110	122	140.5	1.0	177	2.3	5.0
SMAJ120	SMAJ120C	120	133	169.0	1.0	214	1.9	5.0
SMAJ120A	SMAJ120CA	120	133	153.0	1.0	193	2.1	5.0
SMAJ130	SMAJ130C	130	144	182.5	1.0	231	1.7	5.0
SMAJ130A	SMAJ130CA	130	144	165.5	1.0	209	1.9	5.0
SMAJ150	SMAJ150C	150	167	211.5	1.0	268	1.5	5.0
SMAJ150A	SMAJ150CA	150	167	192.5	1.0	243	1.6	5.0
SMAJ160	SMAJ160C	160	178	226.0	1.0	287	1.4	5.0
SMAJ160A	SMAJ160CA	160	178	205.0	1.0	259	1.5	5.0
SMAJ170	SMAJ170C	170	189	239.5	1.0	304	1.3	5.0
SMAJ170A	SMAJ170CA	170	189	217.5	1.0	275	1.5	5.0

NOTES:

1. V_{BR} measured after I_T applied for 300μs, I_T=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 10/1000μs

RATINGS AND CHARACTERISTIC CURVES SMAJ5.0 THUR SMAJ170CA

FIG. 1-PEAK PULSE POWER RATING CURVE

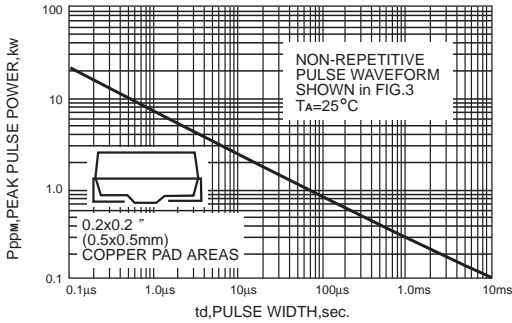


FIG. 2-PULSE DERATING CURVE

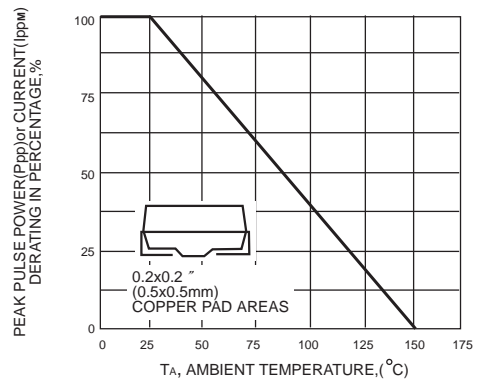


FIG.3-PULSE WAVEFORM

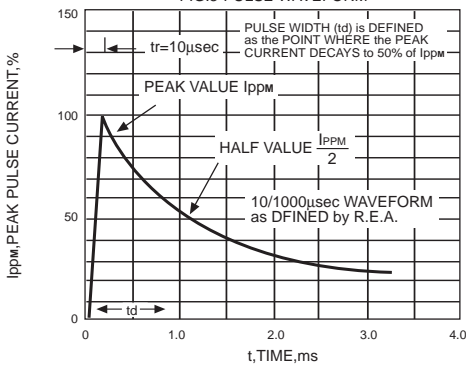


FIG. 4-TYPICAL JUNCTIONAL CAPACITANCE UNIDIRECTIONAL

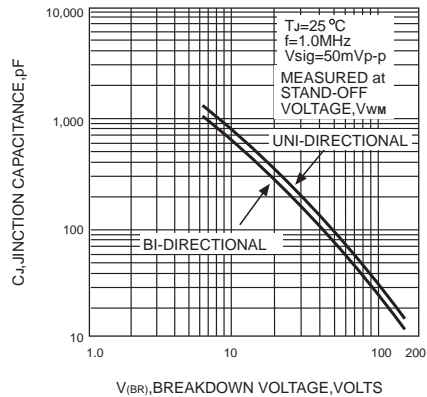


FIG.5-STEADY STATE POWER DERATING CURVE

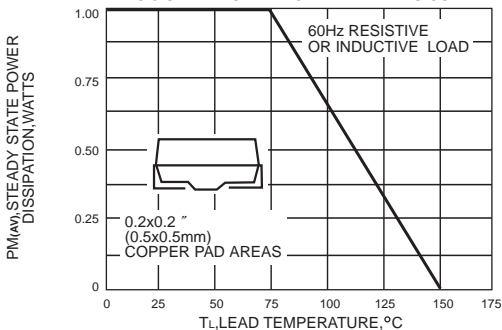


FIG.6-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL ONLY

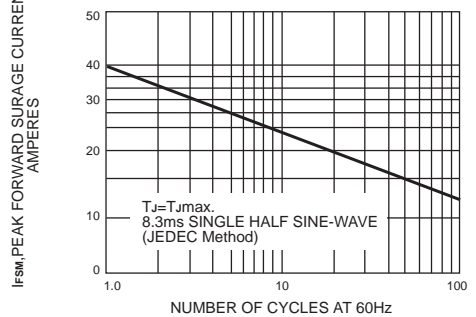


FIG.7-TYPICAL RESPONSE TO 8KV POSITIVE GOING ESD PULSE PER IEC1000-4-2(IEC801-2)

