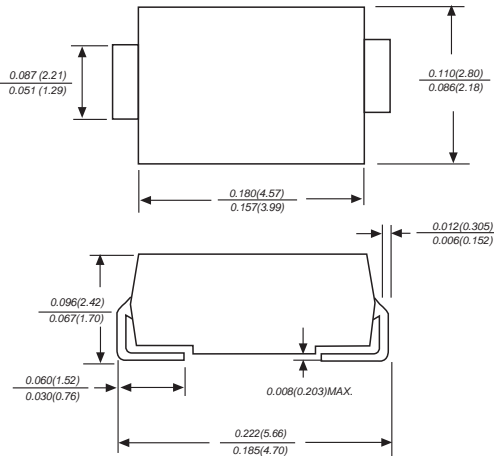


# SMAJ5.0A THRU SMAJ440CA

## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

Stand-off Voltage: 5.0-440 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
- ◆ 300w 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: 250°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:** 0.058 grams

### DEVICES FOR BIDIRECTIONAL APPLICATIONS

For bidirectional use suffix C for types SMAJ5.0A thru SMAJ440A (e.g. SMAJ5.0CA, SMAJ440CA)  
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 10/1000ms wavetorm(NOTE 1,2,5,FIG.1)	P <sub>PPM</sub>	Minimum 400	Watts
Peak forward surge current (Note 4)	I <sub>FSM</sub>	40.0	Amps
Peak pulse current with a 10/1000ms waveform(NOTE 1)	I <sub>PPM</sub>	See Table 1	Amps
Steady state power dissipation (Note 3)	P <sub>M(AV)</sub>	1.0	Watts
Maximum instantaneous forward voltage at 25A(Note 4)	V <sub>F</sub>	3.5	Volts
Operating junction and storage temperature range	T <sub>STG</sub> , T <sub>J</sub>	-55 to + 150	°C

- Notes:**
- 1.Non-repetitive current pulse,per Fig.3 and derated above T<sub>A</sub>=25°C per Fig.2
  - 2.Mounted on 5.0mm<sup>2</sup> copper pads to each terminal
  - 3.Lead temperature at T<sub>L</sub>=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 10/1000ms

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

Part Number (Uni)	Part Number (Bi)	Device Marking Code		Reverse Stand off Voltage $V_R$ (Volts)	Breakdown Voltage VBR (Volts) @ $I_T$		Test Current $I_T$ (mA)	Maximum Clamping Voltage $V_C$ @ $I_{PP}$ (Volts)	Maximum Peak Pulse Current $I_{PP}$ (A)	Maximum Reverse Leakage $I_R$ @ $V_R$ ( $\mu$ A)
		UNI	BI		MIN	MAX				
SMAJ5.0A	SMAJ5.0CA	AE	WE	5	6.4	7	10	9.2	43.5	800
SMAJ6.0A	SMAJ6.0CA	AG	WG	6	6.67	7.37	10	10.3	38.8	800
SMAJ6.5A	SMAJ6.5CA	AK	WK	6.5	7.22	7.98	10	11.2	35.7	500
SMAJ7.0A	SMAJ7.0CA	AM	WM	7	7.78	8.6	10	12	33.3	200
SMAJ7.5A	SMAJ7.5CA	AP	WP	7.5	8.33	9.21	1	12.9	31	100
SMAJ8.0A	SMAJ8.0CA	AR	WR	8	8.89	9.83	1	13.6	29.4	50
SMAJ8.5A	SMAJ8.5CA	AT	WT	8.5	9.44	10.4	1	14.4	27.8	20
SMAJ9.0A	SMAJ9.0CA	AV	WV	9	10	11.1	1	15.4	26	10
SMAJ10A	SMAJ10CA	AX	WX	10	11.1	12.3	1	17	23.5	5
SMAJ11A	SMAJ11CA	AZ	WZ	11	12.2	13.5	1	18.2	22	5
SMAJ12A	SMAJ12CA	BE	XE	12	13.3	14.7	1	19.9	20.1	5
SMAJ13A	SMAJ13CA	BG	XG	13	14.4	15.9	1	21.5	18.6	5
SMAJ14A	SMAJ14CA	BK	XK	14	15.6	17.2	1	23.2	17.2	5
SMAJ15A	SMAJ15CA	BM	XM	15	16.7	18.5	1	24.4	16.4	5
SMAJ16A	SMAJ16CA	BP	XP	16	17.8	19.7	1	26	15.4	5
SMAJ17A	SMAJ17CA	BR	XR	17	18.9	20.9	1	27.6	14.5	5
SMAJ18A	SMAJ18CA	BT	XT	18	20	22.1	1	29.2	13.7	5
SMAJ20A	SMAJ20CA	BV	XV	20	22.2	24.5	1	32.4	12.3	5
SMAJ22A	SMAJ22CA	BX	XY	22	24.4	26.9	1	35.5	11.3	5
SMAJ24A	SMAJ24CA	BZ	XZ	24	26.7	29.5	1	38.9	10.3	5
SMAJ26A	SMAJ26CA	CE	YE	26	28.9	31.9	1	42.1	9.5	5
SMAJ28A	SMAJ28CA	CG	YG	28	31.1	34.4	1	45.4	8.8	5
SMAJ30A	SMAJ30CA	CK	YK	30	33.3	36.8	1	48.4	8.3	5
SMAJ33A	SMAJ33CA	CM	YM	33	36.7	40.6	1	53.3	7	5
SMAJ36A	SMAJ36CA	CP	YP	36	40	44.2	1	58.1	6.9	5
SMAJ40A	SMAJ40CA	CR	YR	40	44.4	49.1	1	64.5	6.2	5
SMAJ43A	SMAJ43CA	CT	YT	43	47.8	52.8	1	69.4	5.8	5
SMAJ45A	SMAJ45CA	CV	YV	45	50	55.3	1	72.7	5.5	5
SMAJ48A	SMAJ48CA	CX	YX	48	53.3	58.9	1	77.4	5.2	5
SMAJ51A	SMAJ51CA	CZ	YZ	51	56.7	62.7	1	82.4	4.9	5
SMAJ54A	SMAJ54CA	RE	ZE	54	60	66.3	1	87.1	4.6	5
SMAJ58A	SMAJ58CA	RG	ZG	58	64.4	71.2	1	93.6	4.3	5
SMAJ60A	SMAJ60CA	RK	ZK	60	66.7	73.7	1	96.8	4.1	5
SMAJ64A	SMAJ64CA	RM	ZM	64	71.1	78.6	1	103	3.9	5
SMAJ70A	SMAJ70CA	RP	ZP	70	77.8	86	1	113	3.5	5
SMAJ75A	SMAJ75CA	RR	ZR	75	83.3	92.1	1	121	3.3	5

## ELECTRICAL CHARACTERISTICS (at T<sub>A</sub>=25°C unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Device Marking Code		Reverse Stand off Voltage V <sub>R</sub> (Volts)	Breakdown Voltage V <sub>BR</sub> (Volts) @ I <sub>T</sub>		Test Current I <sub>T</sub> (mA)	Maximum Clamping Voltage V <sub>C</sub> @ I <sub>PP</sub> (Volts)	Maximum Peak Pulse Current I <sub>PP</sub> (A)	Maximum Reverse Leakage I <sub>R</sub> @ V <sub>R</sub> (μA)
		UNI	BI		MIN	MAX				
SMAJ78A	SMAJ78CA	RT	ZT	78	86.7	95.8	1	126	3.2	5
SMAJ85A	SMAJ85CA	RV	ZV	85	94.4	104	1	137	2.9	5
SMAJ90A	SMAJ90CA	RX	ZX	90	100	111	1	146	2.7	5
SMAJ100A	SMAJ100CA	RZ	ZZ	100	111	123	1	162	2.5	5
SMAJ110A	SMAJ110CA	SE	VE	110	122	135	1	177	2.3	5
SMAJ120A	SMAJ120CA	SG	VG	120	133	147	1	193	2.1	5
SMAJ130A	SMAJ130CA	SK	VK	130	144	159	1	209	1.9	5
SMAJ150A	SMAJ150CA	SM	VM	150	167	185	1	243	1.6	5
SMAJ160A	SMAJ160CA	SP	VP	160	178	197	1	259	1.5	5
SMAJ170A	SMAJ170CA	SR	VR	170	189	209	1	275	1.5	5
SMAJ180A	SMAJ180CA	ST	VT	180	201	222	1	292	1.4	5
SMAJ200A	SMAJ200CA	SV	VV	200	224	247	1	324	1.2	5
SMAJ220A	SMAJ220CA	SX	VX	220	246	272	1	356	1.1	5
SMAJ250A	SMAJ250CA	SZ	VZ	250	279	309	1	405	1	5
SMAJ300A	SMAJ300CA	TE	UE	300	335	371	1	486	0.8	5
SMAJ350A	SMAJ350CA	TG	UG	350	391	432	1	567	0.7	5
SMAJ400A	SMAJ400CA	TK	UK	400	447	494	1	648	0.6	5
SMAJ440A	SMAJ440CA	TM	UM	440	492	543	1	713	0.6	5

**NOTES:**

1. V<sub>BR</sub> measured after I<sub>T</sub> applied for 300ms, I<sub>T</sub>=square wave pulse or equivalent
2. Surge current waveform per Fig.3 and derated per Fig.2
3. For bidirectional types having V<sub>WM</sub> of 10 volts and less, the I<sub>D</sub> limit is doubled
4. All items and symbols are consistent with ANSI/IEEE C62.35
5. Peak pulse power waveform is 10/1000ms

# RATINGS AND CHARACTERISTIC CURVES SMAJ5.0A THUR SMAJ440CA

FIG. 1-PEAK PULSE POWER RATING CURVE

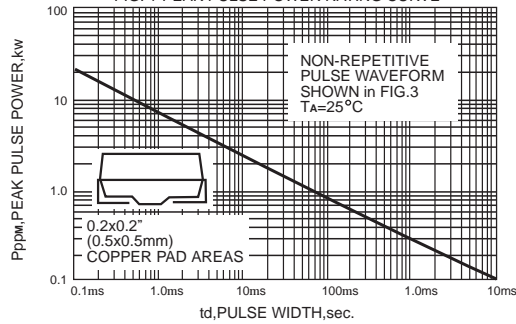


FIG. 2-PULSE DERATING CURVE

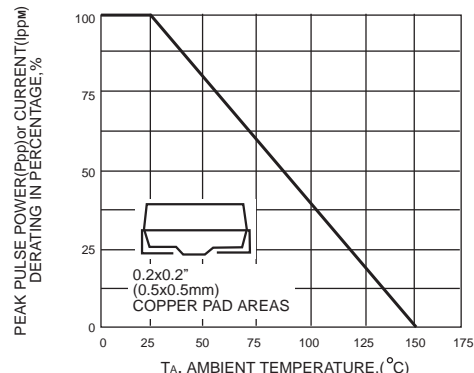


FIG.3-PULSE WAVEFORM

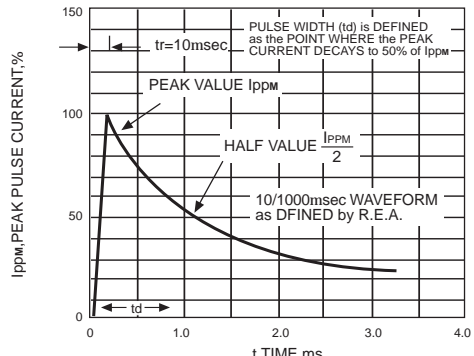


FIG. 4-TYPICAL JUNCTIONAL CAPACITANCE UNIDIRECTIONAL

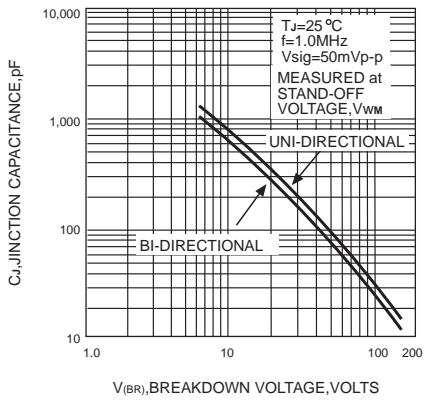


FIG.5-STEADY STATE POWER DERATING CURVE

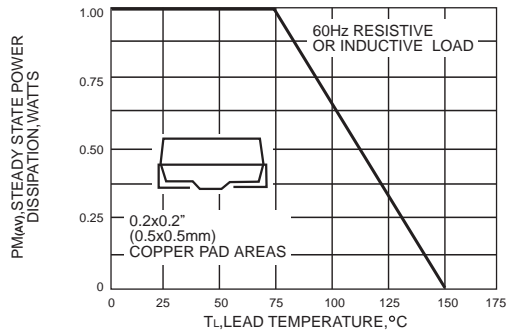


FIG.6-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL ONLY

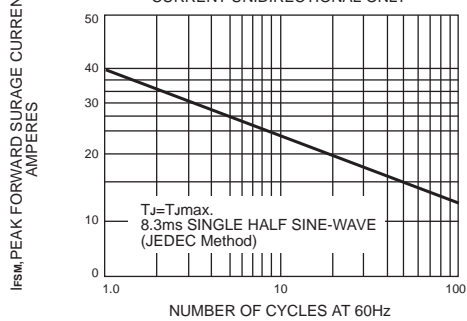


FIG.7-TYPICAL RESPONSE TO 8KV POSITLVE GOLING ESD PULSE PER IEC1000-4-2(IEC801-2)

