



# 1SMC5.0A(CA) - 1SMC440A(CA)

## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

**VOLTAGE RANGE: 5.0 - 440 V**  
**POWER: 1500Watts**

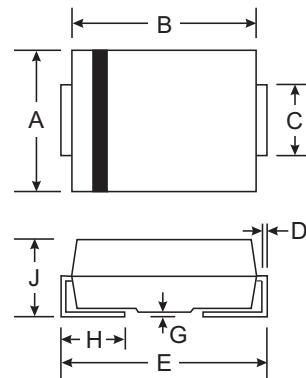
### Features

- Glass Passivated Die Construction
- Uni- and Bi-Directional Versions Available
- Excellent Clamping Capability
- Fast Response Time
- Plastic Case Material has UL Flammability Classification Rating 94V-O



### Mechanical Data

- Case :DO-214AB(SMC)
- Terminals : Solder plated , solderable per MIL-STD-750, method 2026
- Polarity Indicator: Cathode Band  
(Note: Bi-directional devices have no polarity indicator.)
- Marking: Date Code and Marking Code  
See Page 2
- Weight: 0.21 grams (approximate)



SMC/DO-214AB		
Dim	Min	Max
A	5.59	6.22
B	6.60	7.11
C	2.75	3.18
D	0.15	0.31
E	7.75	8.13
G	0.10	0.20
H	0.76	1.52
J	2.00	2.62
All Dimensions in mm		

### Maximum Ratings and Electrical Characteristics @T<sub>A</sub>=25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Peak Pulse Power Dissipation (Non repetitive current pulse derated above T <sub>A</sub> = 25°C) (Note 1)	P <sub>PK</sub>	1500	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) (Notes 1, 2, & 3)	I <sub>FSM</sub>	200	A
Steady State Power Dissipation @ T <sub>L</sub> = 75°C	PM <sub>(AV)</sub>	5.0	W
Instantaneous Forward Voltage @ I <sub>PP</sub> = 100A (Notes 1 & 3)	V <sub>F</sub>	See Note 5	V
Operating Temperature Range	T <sub>j</sub>	-55 to +150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +175	°C

NOTES:1. Non-repetitive current pulse ,per Fig. 3 and derated above T<sub>A</sub>=25°C per Fig. 1.

2. Thermal Resistance junction to Lead.

3. 8.3ms single half-wave duty cycle=4 pulses per minutes maximum (uni-directional units only).



TYPE		Reverse Stand-Off Voltage	Breakdown Voltage Min. @I <sub>T</sub>	Breakdown Voltage Max. @ I <sub>T</sub>	Test Current	Maximum Clamping Voltage @I <sub>PP</sub>	Peak Pulse Current	Reverse Leakage @V <sub>RWM</sub>
(Uni)	(Bi)	V <sub>RWM</sub> (V)	V <sub>BR MIN</sub> (V)	V <sub>BR MAX</sub> (V)	I <sub>T</sub> (mA)	V <sub>C</sub> (V)	I <sub>PP</sub> (A)	I <sub>R</sub> ( $\mu$ A)
1SMC5.0	1SMC5.0C	5.0	6.40	7.55	10.0	9.6	156.3	800.0
1SMC5.0A	1SMC5.0CA	5.0	6.40	7.25	10.0	9.2	163.0	800.0
1SMC6.0	1SMC6.0C	6.0	6.67	8.45	10.0	11.4	131.6	800.0
1SMC6.0A	1SMC6.0CA	6.0	6.67	7.67	10.0	10.3	145.6	800.0
1SMC6.5	1SMC6.5C	6.5	7.22	9.14	10.0	12.3	122.0	500.0
1SMC6.5A	1SMC6.5CA	6.5	7.22	8.30	10.0	11.2	133.9	500.0
1SMC7.0	1SMC7.0C	7.0	7.78	9.86	10.0	13.3	112.8	200.0
1SMC7.0A	1SMC7.0CA	7.0	7.78	8.95	10.0	12.0	125.0	200.0
1SMC7.5	1SMC7.5C	7.5	8.33	10.67	1.0	14.3	104.9	100.0
1SMC7.5A	1SMC7.5CA	7.5	8.33	9.58	1.0	12.9	116.3	100.0
1SMC8.0	1SMC8.0C	8.0	8.89	11.3	1.0	15.0	100.0	50.0
1SMC8.0A	1SMC8.0CA	8.0	8.89	10.23	1.0	13.6	110.3	50.0
1SMC8.5	1SMC8.5C	8.5	9.44	11.92	1.0	15.9	94.3	20.0
1SMC8.5A	1SMC8.5CA	8.5	9.44	10.82	1.0	14.4	104.2	20.0
1SMC9.0	1SMC9.0C	9.0	10.0	12.6	1.0	16.9	88.8	10.0
1SMC9.0A	1SMC9.0CA	9.0	10.0	11.5	1.0	15.4	97.4	10.0
1SMC10	1SMC10C	10	11.1	14.1	1.0	18.8	79.8	5.0
1SMC10A	1SMC10CA	10	11.1	12.8	1.0	17.0	88.2	5.0
1SMC11	1SMC11C	11	12.2	15.4	1.0	20.1	74.6	5.0
1SMC11A	1SMC11CA	11	12.2	14.0	1.0	18.2	82.4	5.0
1SMC12	1SMC12C	12	13.3	16.9	1.0	22.0	68.2	5.0
1SMC12A	1SMC12CA	12	13.3	15.3	1.0	19.9	75.4	5.0
1SMC13	1SMC13C	13	14.4	18.2	1.0	23.8	63.0	5.0
1SMC13A	1SMC13CA	13	14.4	16.5	1.0	21.5	69.8	5.0
1SMC14	1SMC14C	14	15.6	19.8	1.0	25.8	58.1	5.0
1SMC14A	1SMC14CA	14	15.6	17.9	1.0	23.2	64.7	5.0
1SMC15	1SMC15C	15	16.7	21.1	1.0	26.9	55.8	5.0
1SMC15A	1SMC15CA	15	16.7	19.2	1.0	24.4	61.5	5.0
1SMC16	1SMC16C	16	17.8	22.6	1.0	28.8	52.1	5.0
1SMC16A	1SMC16CA	16	17.8	20.5	1.0	26.0	57.7	5.0
1SMC17	1SMC17C	17	18.9	23.9	1.0	30.5	49.2	5.0
1SMC17A	1SMC17CA	17	18.9	21.7	1.0	27.6	54.3	5.0
1SMC18	1SMC18C	18	20.0	25.3	1.0	32.2	46.6	5.0
1SMC18A	1SMC18CA	18	20.0	23.3	1.0	29.2	51.4	5.0
1SMC20	1SMC20C	20	22.2	28.1	1.0	35.8	41.9	5.0
1SMC20A	1SMC20CA	20	22.2	25.5	1.0	32.4	46.3	5.0
1SMC22	1SMC22C	22	24.4	30.9	1.0	39.4	38.1	5.0



TYPE		Reverse Stand-Off Voltage	Breakdown Voltage Min. @I <sub>T</sub>	Breakdown Voltage Max. @ I <sub>T</sub>	Test Current	Maximum Clamping Voltage @I <sub>PP</sub>	Peak Pulse Current	Reverse Leakage @V <sub>RWM</sub>
(Uni)	(Bi)	V <sub>RWM</sub> (V)	V <sub>BR MIN</sub> (V)	V <sub>BR MAX</sub> (V)	I <sub>T</sub> (mA)	V <sub>C</sub> (V)	I <sub>PP</sub> (A)	I <sub>R</sub> (uA)
1SMC22A	1SMC22CA	22	24.4	28.0	1.0	35.5	42.3	5.0
1SMC24	1SMC24C	24	26.7	33.8	1.0	43.0	34.9	5.0
1SMC24A	1SMC24CA	24	26.7	30.7	1.0	38.9	38.6	5.0
1SMC26	1SMC26C	26	28.9	36.6	1.0	46.6	32.2	5.0
1SMC26A	1SMC26CA	26	28.9	33.2	1.0	42.1	35.6	5.0
1SMC28	1SMC28C	28	31.1	39.4	1.0	50.0	30.0	5.0
1SMC28A	1SMC28CA	28	31.1	35.8	1.0	45.4	33.0	5.0
1SMC30	1SMC30C	30	33.3	42.2	1.0	53.5	28.0	5.0
1SMC30A	1SMC30CA	30	33.3	38.3	1.0	48.4	31.0	5.0
1SMC33	1SMC33C	33	36.7	46.5	1.0	59.0	25.4	5.0
1SMC33A	1SMC33CA	33	36.7	42.2	1.0	53.3	28.1	5.0
1SMC36	1SMC36C	36	40.0	50.7	1.0	64.3	23.3	5.0
1SMC36A	1SMC36CA	36	40.0	46.0	1.0	58.1	25.8	5.0
1SMC40	1SMC40C	40	44.4	56.3	1.0	71.4	21.0	5.0
1SMC40A	1SMC40CA	40	44.4	51.1	1.0	64.5	23.3	5.0
1SMC43	1SMC43C	43	47.8	60.5	1.0	76.7	19.6	5.0
1SMC43A	1SMC43CA	43	47.8	54.9	1.0	69.4	21.6	5.0
1SMC45	1SMC45C	45	50.0	63.3	1.0	80.3	18.7	5.0
1SMC45A	1SMC45CA	45	50.0	57.5	1.0	72.7	20.6	5.0
1SMC48	1SMC48C	48	53.3	67.5	1.0	85.5	17.5	5.0
1SMC48A	1SMC48CA	48	53.3	61.3	1.0	77.4	19.4	5.0
1SMC51	1SMC51C	51	56.7	71.8	1.0	91.1	16.5	5.0
1SMC51A	1SMC51CA	51	56.7	65.2	1.0	82.4	18.2	5.0
1SMC54	1SMC54C	54	60.0	76.0	1.0	96.3	15.6	5.0
1SMC54A	1SMC54CA	54	60.0	69.0	1.0	87.1	17.2	5.0
1SMC58	1SMC58C	58	64.4	81.6	1.0	103	14.6	5.0
1SMC58A	1SMC58CA	58	64.4	74.1	1.0	93.6	16.0	5.0
1SMC60	1SMC60C	60	66.7	84.5	1.0	107	14.0	5.0
1SMC60A	1SMC60CA	60	66.7	76.7	1.0	96.8	15.5	5.0
1SMC64	1SMC64C	64	71.1	90.1	1.0	114	13.2	5.0
1SMC64A	1SMC64CA	64	71.1	81.8	1.0	103	14.6	5.0
1SMC70	1SMC70C	70	77.8	98.6	1.0	125	12.0	5.0
1SMC70A	1SMC70CA	70	77.8	89.5	1.0	113	13.3	5.0
1SMC75	1SMC75C	75	83.0	105.7	1.0	134	11.2	5.0
1SMC75A	1SMC75CA	75	83.0	95.8	1.0	121	12.4	5.0
1SMC78	1SMC78C	78	86.0	109.8	1.0	139	10.8	5.0



TYPE		Reverse Stand-Off Voltage	Breakdown Voltage Min. @I <sub>T</sub>	Breakdown Voltage Max. @ I <sub>T</sub>	Test Current	Maximum Clamping Voltage @I <sub>PP</sub>	Peak Pulse Current	Reverse Leakage @V <sub>RWM</sub>
(Uni)	(Bi)	V <sub>RWM</sub> (V)	V <sub>BR MIN</sub> (V)	V <sub>BR MAX</sub> (V)	I <sub>T</sub> (mA)	V <sub>C</sub> (V)	I <sub>PP</sub> (A)	I <sub>R</sub> (uA)
1SMC78A	1SMC78CA	78	86.0	99.7	1.0	126	11.9	5.0
1SMC85	1SMC85C	85	94.0	119.2	1.0	151	9.9	5.0
1SMC85A	1SMC85CA	85	94.0	108.2	1.0	137	10.9	5.0
1SMC90	1SMC90C	90	100	126.5	1.0	160	9.4	5.0
1SMC90A	1SMC90CA	90	100	115.5	1.0	146	10.3	5.0
1SMC100	1SMC100C	100	111	141.0	1.0	179	8.4	5.0
1SMC100A	1SMC100CA	100	111	128.0	1.0	162	9.3	5.0
1SMC110	1SMC110C	10	122	154.5	1.0	196	7.7	5.0
1SMC110A	1SMC110CA	110	122	140.5	1.0	177	8.5	5.0
1SMC120	1SMC120C	120	133	169.0	1.0	214	7.0	5.0
1SMC120A	1SMC120CA	120	133	153.0	1.0	193	7.8	5.0
1SMC130	1SMC130C	130	144	182.5	1.0	231	6.5	5.0
1SMC130A	1SMC130CA	130	144	165.5	1.0	209	7.2	5.0
1SMC150	1SMC150C	150	167	211.5	1.0	268	5.6	5.0
1SMC150A	1SMC150CA	150	167	192.5	1.0	243	6.2	5.0
1SMC160	1SMC160C	160	178	226.0	1.0	287	5.2	5.0
1SMC160A	1SMC160CA	160	178	205.0	1.0	259	5.8	5.0
1SMC170	1SMC170C	170	189	239.5	1.0	304	4.9	5.0
1SMC170A	1SMC170CA	170	189	217.5	1.0	275	5.5	5.0
1SMC180	1SMC180C	180	200	253.8	1.0	321	4.7	5.0
1SMC180A	1SMC180CA	180	200	230.4	1.0	290	5.2	5.0
1SMC190	1SMC190C	190	211	267.9	1.0	339	4.4	5.0
1SMC190A	1SMC190CA	190	211	243.2	1.0	306	4.9	5.0
1SMC200	1SMC200C	200	222	282.0	1.0	356	4.2	5.0
1SMC200A	1SMC200CA	200	222	256.0	1.0	322	4.7	5.0
1SMC210	1SMC210C	210	233	296.1	1.0	375	4.0	5.0
1SMC210A	1SMC210CA	210	233	268.8	1.0	339	4.4	5.0
1SMC220	1SMC220C	220	244	310.2	1.0	392	3.8	5.0
1SMC220A	1SMC220CA	220	244	281.6	1.0	355	4.2	5.0
1SMC250	1SMC250C	250	278	342.5	1.0	447	3.4	5.0
1SMC250A	1SMC250CA	250	278	309.0	1.0	403	3.7	5.0
1SMC300	1SMC300C	300	333	411.0	1.0	535	2.8	5.0
1SMC300A	1SMC300CA	300	333	371.0	1.0	484	3.1	5.0
1SMC350	1SMC350C	350	389	479.5	1.0	624	2.4	5.0
1SMC350A	1SMC350CA	350	389	432.0	1.0	565	2.7	5.0
1SMC400	1SMC400C	400	444	548.0	1.0	687	2.2	5.0
1SMC400A	1SMC400CA	400	444	494.0	1.0	645	2.3	5.0
1SMC440	1SMC440C	440	489	602.8	1.0	786	1.9	5.0
1SMC440A	1SMC440CA	440	489	543.0	1.0	710	2.1	5.0

## Ratings and Characteristic Curves $T_A=25^\circ\text{C}$ unless otherwise noted

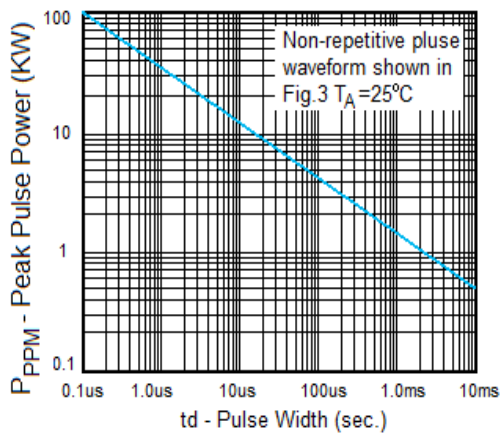


Fig. 1 Peak Pulse Power Rating

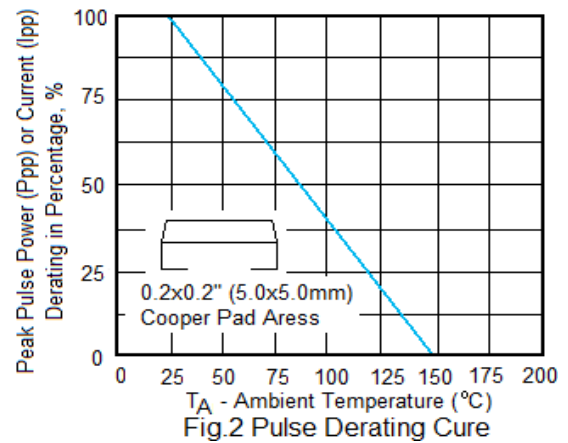


Fig. 2 Pulse Derating Curve

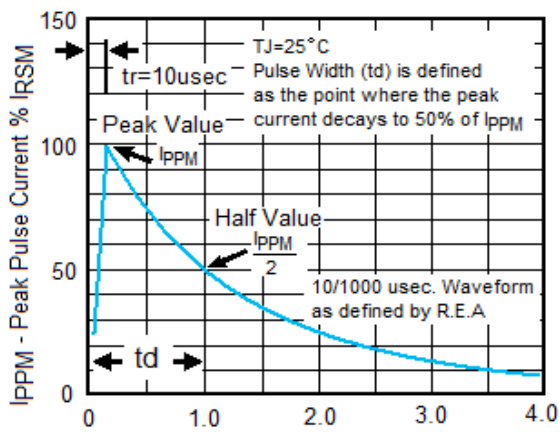


Fig. 3 Pulse Waveform

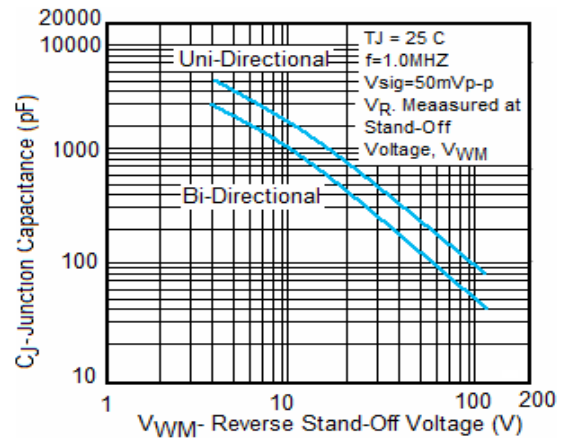


Fig. 4- Typical Junction Capacitance