

## TRANSIENT VOLTAGE SUPPRESSOR

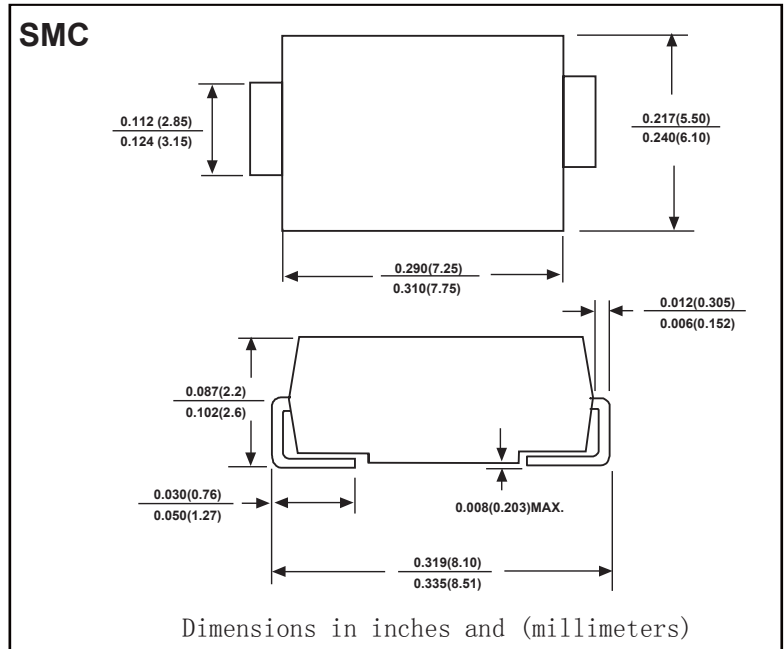
**BREAKDOWN VOLTAGE: 6.8 ---440 V**  
**PEAK PULSE POWER: 5000 W**

### FEATURES

- Glass passivated chip
- Low leakage
- Uni and Bidirectional unit
- Excellent clamping capability
- Very fast response time
- RoHS compliant

### MECHANICAL DATA

- Case style:SMC plastic molded
- Polarity:color band denotes positive end( cathode ) except for bidirectional
- Mounting position: any



### DEVICES FOR BIDIRECTIONAL APPLICATIONS

For bi-directional use C or CA suffix for types SMCJ 5.0 thru types SMCJ 440 (e.g. SMCJ5.0CA, SMCJ440CA).  
Electrical characteristics apply in both directions.

### MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	Value	Units
Peak Power Dissipation (Note 1.) @ $T_L = 25^\circ\text{C}$ , Pulse Width = 1 ms	$P_{PK}$	5000	W
Forward Surge Current (Note 2.) @ $T_A = 25^\circ\text{C}$	$I_{FSM}$	200	A
Power Dissipation On Infinite Heatsink, @ $T_A = 50^\circ\text{C}$	$P_{M(AV)}$	5.0	W
Thermal Resistance Junction To Ambient Air (Note 3.)	$R_{\theta JA}$	75	$^\circ\text{C/W}$
Thermal Resistance Junction To Leads	$R_{\theta JL}$	15	$^\circ\text{C/W}$
Storage Temperature Range	$T_{STG}$	-55 to 150	$^\circ\text{C}$
Operating Junction Temperature Range	$T_J$	-55 to 150	$^\circ\text{C}$

- 1) 10 X 1000 us, non-repetitive
- 2) 1/2 sine wave (or equivalent square wave), PW = 8.3 ms, duty cycle = 4 pulses per minute maximum
- 3) Mounted on minimum recommended pad layout

## RATINGS AND CHARACTERISTIC CURVES

**Electrical Characteristics** (Ratings at 25 °C ambient temperature unless otherwise specified).

Part Number (Uni)	Part Number (Bi)	Marking		Reverse Stand off Voltage VR (Volts)	Breakdown Voltage VBR (Volts) @ IT			Maximum Reverse Leakage IR @ VR ( $\mu$ A)	Maximum Clamping Voltage VC @ IPP (Volts)	Maximum Peak Pulse Current IPP (A)	Max Voltage Temperature Variation of VBR (%/°C)
		Uni	Bi		MIN	MAX	m A				
5.0SMC6.8A*	5.0SMC6.8CA*	6V8A	6V8CA	5.8	6.45	7.14	10	800	10.5	476	0.057
5.0SMC7.5A	5.0SMC7.5CA	7V5A	7V5CA	6.4	7.13	7.88	10	500	11.3	442	0.061
5.0SMC8.2A	5.0SMC8.2CA	8V2A	8V2CA	7.02	7.79	8.61	10	150	12.1	413	0.065
5.0SMC9.1A	5.0SMC9.1CA	9V1A	9V1CA	7.78	8.6	9.55	1	50	13.4	373	0.068
5.0SMC10A	5.0SMC10CA	10A	10CA	8.55	9.5	10.5	1	10	14.5	345	0.073
5.0SMC11A	5.0SMC11CA	11A	11CA	9.87	10.5	11.6	1	3	15.6	321	0.075
5.0SMC12A	5.0SMC12CA	12A	12CA	10.71	11.4	12.6	1	3	16.7	299	0.078
5.0SMC13A	5.0SMC13CA	13A	13CA	11.66	12.4	13.7	1	3	18.2	275	0.081
5.0SMC15A	5.0SMC15CA*	15A	15CA	13.44	14.3	15.8	1	3	21.2	236	0.084
5.0SMC16A	5.0SMC16CA	16A	16CA	14.28	15.2	16.8	1	3	22.5	222	0.086
5.0SMC18A*	5.0SMC18CA*	18A	18CA	16.07	17.1	18.9	1	3	25.2	198	0.088
5.0SMC20A*	5.0SMC20CA	20A	20CA	17.96	19	21	1	3	27.7	181	0.09
5.0SMC22A	5.0SMC22CA	22A	22CA	19.74	20.9	23.1	1	3	30.6	163	0.092
5.0SMC24A*	5.0SMC24CA*	24A	24CA	21.53	22.8	25.2	1	3	33.2	151	0.094
5.0SMC27A*	5.0SMC27CA*	27A	27CA	24.26	25.7	28.4	1	3	37.5	133	0.096
5.0SMC30A	5.0SMC30CA	30A	30CA	26.88	28.5	31.5	1	3	41.4	121	0.097
5.0SMC33A*	5.0SMC33CA	33A	33CA	29.61	31.4	34.7	1	3	45.7	109	0.098
5.0SMC36A	5.0SMC36CA	36A	36CA	32.34	34.2	37.8	1	3	49.9	100	0.099
5.0SMC39A*	5.0SMC39CA	39A	39CA	34.97	37.1	41	1	3	53.9	93	0.1
5.0SMC43A	5.0SMC43CA	43A	43CA	38.64	40.9	45.2	1	3	59.3	84	0.101
5.0SMC47A	5.0SMC47CA	47A	47CA	42.21	44.7	49.4	1	3	64.8	77	0.101
5.0SMC51A	5.0SMC51CA	51A	51CA	45.78	48.5	53.6	1	3	70.1	71	0.102
5.0SMC56A	5.0SMC56CA	56A	56CA	50.19	53.2	58.8	1	3	77	65	0.103
5.0SMC62A	5.0SMC62CA	62A	62CA	55.65	58.9	65.1	1	3	85	59	0.104
5.0SMC68A	5.0SMC68CA	68A	68CA	61.01	64.6	71.4	1	3	92	54	0.104
5.0SMC75A	5.0SMC75CA*	75A	75CA	67.31	71.3	78.8	1	3	103	49	0.105
5.0SMC82A	5.0SMC82CA	82A	82CA	73.61	77.9	86.1	1	3	113	44	0.105
5.0SMC91A	5.0SMC91CA	91A	91CA	81.69	86.5	95.5	1	3	125	40	0.106
5.0SMC100A	5.0SMC100CA	100A	100CA	89.78	95	105	1	3	137	36	0.106
5.0SMC110A	5.0SMC110CA	110A	110CA	98.7	105	116	1	3	152	33	0.107
5.0SMC120A*	5.0SMC120CA*	120A	120CA	107.1	114	126	1	3	165	30	0.107
5.0SMC130A	5.0SMC130CA	130A	130CA	116.55	124	137	1	3	179	28	0.107
5.0SMC150A	5.0SMC150CA	150A	150CA	134.4	143	158	1	3	207	24	0.108
5.0SMC160A	5.0SMC160CA	160A	160CA	142.8	152	168	1	3	219	23	0.108

## RATINGS AND CHARACTERISTIC CURVES

**Electrical Characteristics** (Ratings at 25°C ambient temperature unless otherwise specified).

Part Number (Uni)	Part Number (Bi)	Marking		Reverse Stand off Voltage VR (Volts)	Breakdown Voltage VBR (Volts) @ IT			Maximum Reverse Leakage IR @ VR ( $\mu$ A)	Maximum Clamping Voltage VC @ IPP (Volts)	Maximum Peak Pulse Current IPP (A)	Max Voltage Temperature Variation of VBR (%/°C)
		Uni	Bi		MIN	MAX	m A				
5.0SMC170A	5.0SMC170CA	170A	170CA	152.25	162	179	1	3	234	21	0.108
5.0SMC180A	5.0SMC180CA	180A	180CA	161.7	171	189	1	3	246	20	0.108
5.0SMC200A*	5.0SMC200CA*	200A	200CA	179.55	190	210	1	3	274	18	0.108
5.0SMC220A	5.0SMC220CA	220A	220CA	194.25	209	231	1	3	328	15	0.108
5.0SMC250A	5.0SMC250CA	250A	250CA	224.7	237	263	1	3	344	15	0.11
5.0SMC300A	5.0SMC300CA*	300A	300CA	268.8	285	315	1	3	414	12	0.11
5.0SMC350A*	5.0SMC350CA	350A	350CA	315	332	368	1	3	482	10	0.11
5.0SMC400A	5.0SMC400CA*	400A	400CA	359.1	380	420	1	3	548	9	0.11
5.0SMC440A	5.0SMC440CA	440A	440CA	394.8	418	462	1	3	602	8	0.11

※For Bi-directional type having VRWM of 10 Volts and less, the IR limit is double

1. A transient suppressor is normally selected according to the working peak reverse voltage (VRWM), which should be DC or continuous peak operating voltage level.
2. VBR measured at pulse test current IT at an ambient temperature of 25°C.
3. Surge current waveform per Figure 1 and derate per Figure 3.

# RATINGS AND CHARACTERISTIC CURVES

## Typical Characteristics

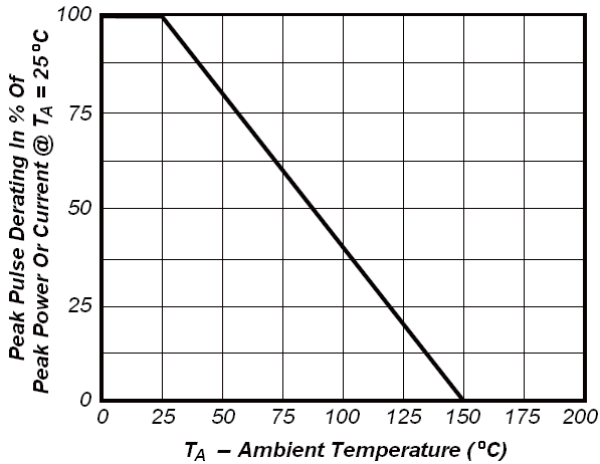


Fig1. Pulse Dearing Curve

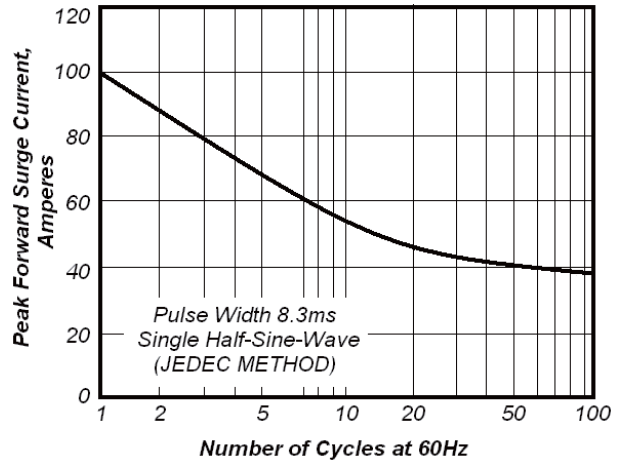


Fig2. Maximum Non-Repetitive Peak Forward Surge Current

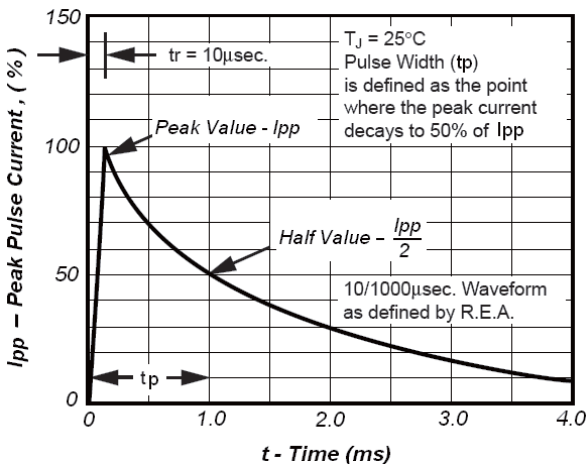


Fig3. Pulse Waveform

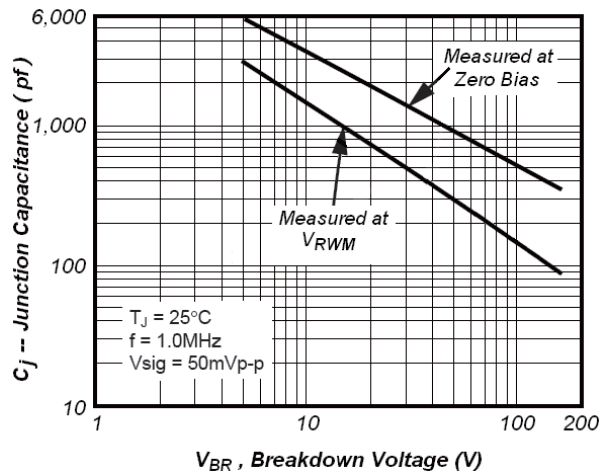


Fig4. Typical Junction Capacitance

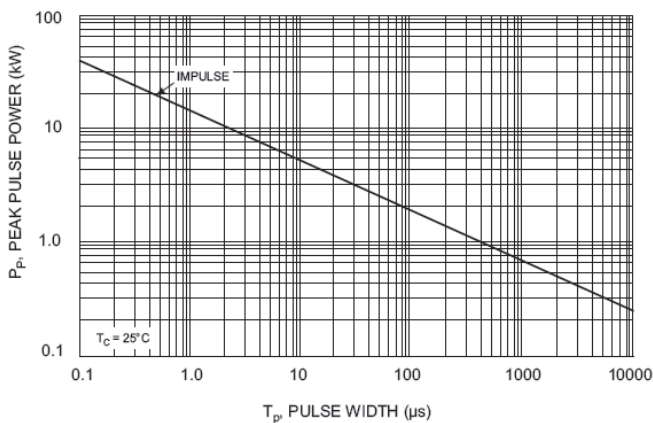


Fig5. Peak Pulse Power Rating curve

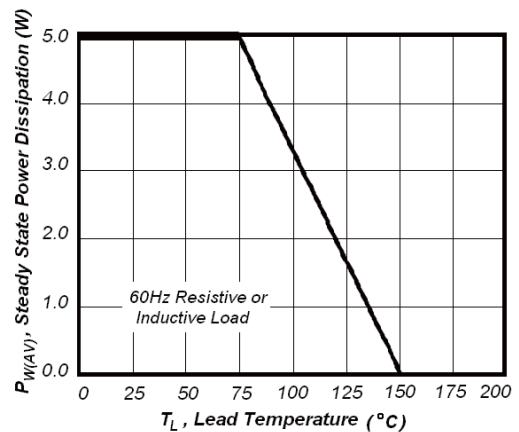


Fig6. Steady State Power Derating Curve