



# TVS: 1.5SMC6.8A thru 1.5SMC540A

## Glass Passivated TVS

### Features

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Low profile package with built-in strain relief for surface mounted applications
- Glass passivated chip
- Low incremental surge resistance
- Excellent clamping capability
- 1500W peak pulse power capability on 10/1000 $\mu$ s waveform repetition rate (duty cycle): 0.01%
- Very Fast response time
- Typical  $I_p$  less than 1 $\mu$ A at above 10V



**RoHS**  
COMPLIANT



SMC (DO-214AB)

### Mechanical Data

- **Case:** JEDEC DO-214AB(SMC) molded plastic body over glass passivated chip
- **Terminals:** Solder plated, solderable per MIL-STD-750, Method 2026. High temperature soldering guaranteed: 250°C/10 seconds at terminals.
- **Polarity:** For uni-directional types the band denotes the cathode, which is positive with respect to the anode under normal TVS operation.

### Major Ratings and Characteristics

$P_{PPM}$	1500 W
$V_{RRM}$	6.8 V to 540 V
$I_{FSM}$	200 A
$T_j \text{ max.}$	150 °C

### Devices for Bidirectional Applications

- For bi-directional devices, use suffix C or CA (e.g. P15CT10C, P15CT10CA). Electrical characteristics apply in both directions.

### Maximum Ratings & Thermal Characteristics

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

Items	Symbol	Value	UNIT
Peak pulse power dissipation with a 10/1000 $\mu$ s waveform (see fig. 1)	$P_{PPM}$	1500	W
Peak pulse current with a waveform (see fig. 3, single pulse)	$I_{PPM}$	See Next Table	A
Peak forward surge current 8.3ms single half sine-wave uni-directional only	$I_{FSM}$	200	A
Typical thermal resistance, junction to ambient <sup>(1)</sup>	$R_{\theta JA}$	75	°C / W
Typical thermal resistance, junction to lead <sup>(1)</sup>	$R_{\theta JL}$	15	°C / W
Operating junction and storage temperature range	$T_j, T_{STG}$	-55 to +150	°C

Note 1: Mounted on P.C.B. with 0.32 x 0.32" (8.0 x 8.0mm) copper pad areas.





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## Electrical Characteristics

( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

Device Type	Marking Code		Breakdown Voltage at $I_T^{(2)}$ $V_{(BR)}$ (V)		Test Current $I_T$ (mA)	Stand-off Voltage $V_{WM}$ (V)	Maximum Reverse Leakage at $V_{WM}^{(4)}$ $I_D$ ( $\mu\text{A}$ )	Maximum Peak Pulse Surge Current <sup>(3)</sup> $I_{PPM}$ (A)	Maximum Clamping Voltage at $I_{PPM}$ $V_C$ (V)
	UNI	BI	Min	Max					
1.5SMC6.8A	6V8A	6V8C	6.45	7.14	10	5.80	1000	143	10.5
1.5SMC7.5A	7V5A	7V5C	7.13	7.88	10	6.40	500	133	11.3
1.5SMC8.2A	8V2A	8V2C	7.79	8.61	10	7.02	200	124	12.1
1.5SMC9.1A	9V1A	9V1C	8.65	9.55	1	7.78	50	112	13.4
1.5SMC10A	10A	10C	9.5	10.5	1	8.55	10	103	14.5
1.5SMC11A	11A	11C	10.5	11.6	1	9.40	5	96.2	15.6
1.5SMC12A	12A	12C	11.4	12.6	1	10.2	5	89.8	16.7
1.5SMC13A	13A	13C	12.4	13.7	1	11.1	5	82.4	18.2
1.5SMC15A	15A	15C	14.3	15.8	1	12.8	1	70.8	21.2
1.5SMC16A	16A	16C	15.2	16.8	1	13.6	1	66.7	22.5
1.5SMC18A	18A	18C	17.1	18.9	1	15.3	1	59.5	25.2
1.5SMC20A	20A	20C	19.0	21.0	1	17.1	1	54.2	27.7
1.5SMC22A	22A	22C	20.9	23.1	1	18.8	1	49.0	30.6
1.5SMC24A	24A	24C	22.8	25.2	1	20.5	1	45.2	33.2
1.5SMC27A	27A	27C	25.7	28.4	1	23.1	1	40.0	37.5
1.5SMC30A	30A	30C	28.5	31.5	1	25.6	1	36.2	41.4
1.5SMC33A	33A	33C	31.4	34.7	1	28.2	1	32.8	45.7
1.5SMC36A	36A	36C	34.2	37.8	1	30.8	1	30.1	49.9
1.5SMC39A	39A	39C	37.1	41.0	1	33.3	1	27.8	53.9
1.5SMC43A	43A	43C	40.9	45.2	1	36.8	1	25.3	59.3
1.5SMC47A	47A	47C	44.7	49.4	1	40.2	1	23.1	64.8
1.5SMC51A	51A	51C	48.5	53.6	1	43.6	1	21.4	70.1
1.5SMC56A	56A	56C	53.2	58.8	1	47.8	1	19.5	77
1.5SMC62A	62A	62C	58.9	65.1	1	53.0	1	17.6	85
1.5SMC68A	68A	68C	64.6	71.4	1	58.1	1	16.3	92
1.5SMC75A	75A	75C	71.3	78.8	1	64.1	1	14.6	104
1.5SMC82A	82A	82C	77.9	86.1	1	70.1	1	13.3	113
1.5SMC91A	91A	91C	86.5	95.5	1	77.8	1	12.0	125
1.5SMC100A	100A	100C	95	105	1	85.5	1	10.9	137
1.5SMC110A	110A	110C	105	116	1	94.0	1	9.9	152
1.5SMC120A	120A	120C	114	126	1	102	1	9.1	165
1.5SMC130A	130A	130C	124	137	1	111	1	8.4	179
1.5SMC150A	150A	150C	143	158	1	128	1	7.2	207
1.5SMC160A	160A	160C	152	168	1	136	1	6.8	219
1.5SMC170A	170A	170C	162	179	1	145	1	6.4	234
1.5SMC180A	180A	180C	171	189	1	154	1	6.1	246
1.5SMC200A	200A	200C	190	210	1	171	1	5.5	274
1.5SMC220A	220A	220C	209	231	1	185	1	4.6	328
1.5SMC250A	250A	250C	237	263	1	214	1	4.4	344





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## Electrical Characteristics

( $T_A=25\text{ }^\circ\text{C}$  unless otherwise noted)

Device Type	Marking Code		Breakdown Voltage at $I_T^{(2)}$ $V_{(BR)}$ (V)		Test Current $I_T$	Stand-off Voltage $V_{WM}$	Maximum Reverse Leakage at $V_{WM}^{(4)}$ $I_D$	Maximum Peak Pulse Surge Current <sup>(3)</sup> $I_{PPM}$	Maximum Clamping Voltage at $I_{PPM}$ $V_C$
			Min	Max					
1.5SMC300A	300A	300C	315	385	1	256	1	3.6	414
1.5SMC350A	350A	350C	333	368	1	300	1	3.1	482
1.5SMC400A	400A	400C	380	420	1	342	1	2.7	548
1.5SMC440A	440A	440C	418	462	1	376	1	2.5	602
1.5SMC480A	480A	480C	456	504	1	408	1	2.28	658
1.5SMC510A	510A	510C	485	535	1	434	1	2.15	698
1.5SMC540A	540A	540C	513	567	1	459	1	2.03	740

Note 2: Pulse test :  $T_p \leq 50\text{ms}$ .

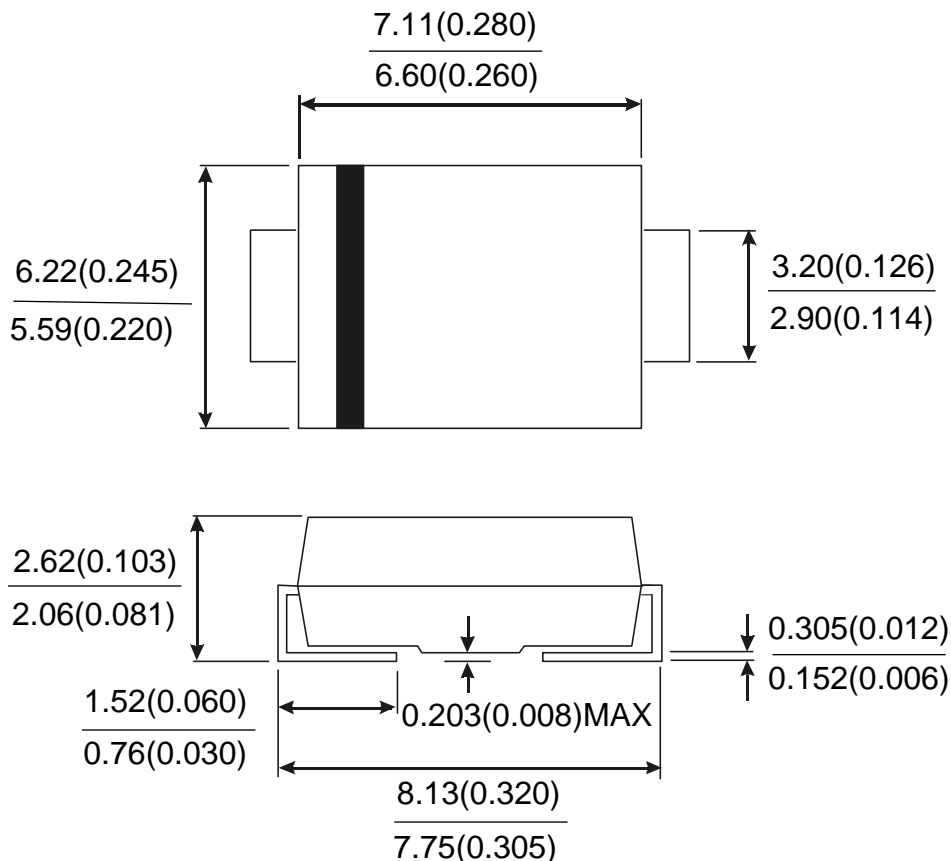
Note 3: Surge current waveform Per Fig. 3 and derate Per Fig. 2.

Note 4: For bi-directional types with  $V_{WM}$  of 10 V and less, the  $I_D$  limit is doubled

Note 5:  $V_F = 3.5\text{ V}$  at  $I_F = 100\text{ A}$  (uni-directional only)

## Package Outline

### SMC

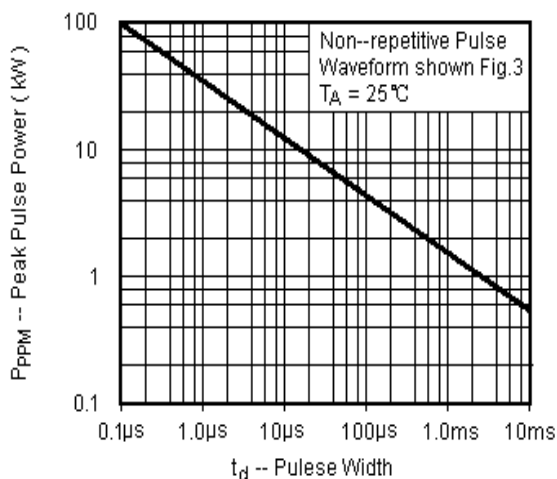




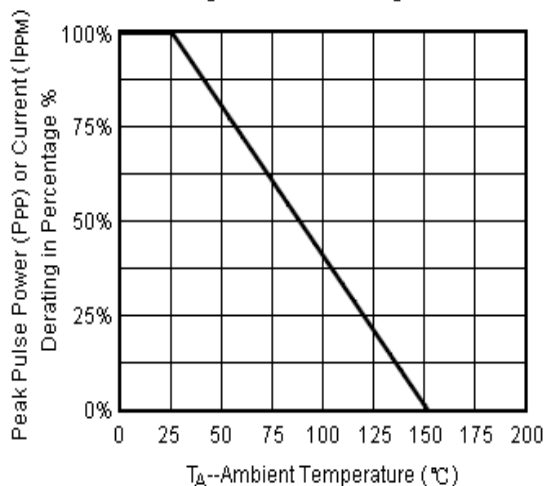
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**Characteristic Curves** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

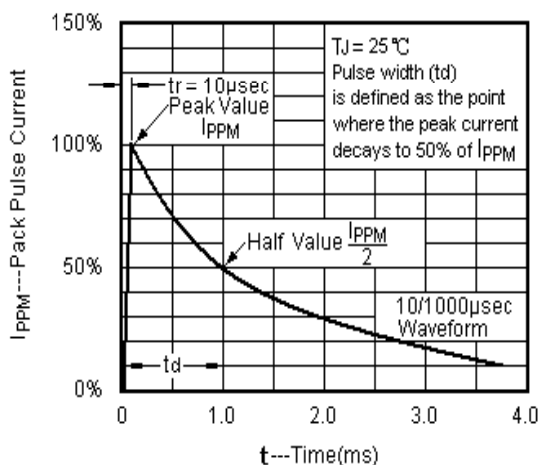
**Fig. 1-- Peak Pulse Power Rating Curve**



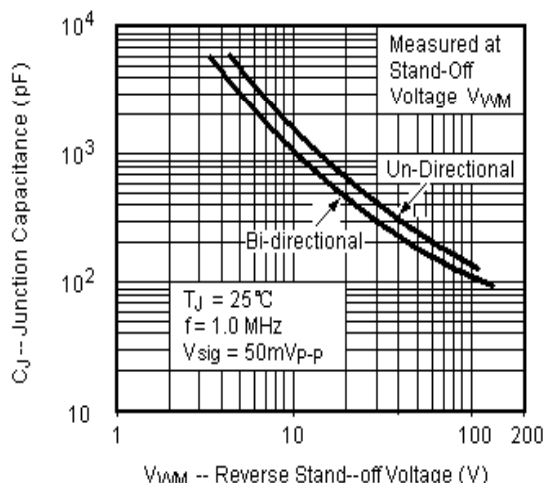
**Fig.2-- Pulse Derating Curve**



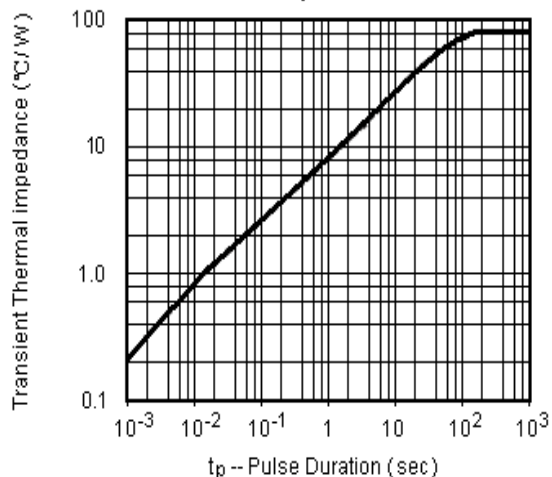
**Fig. 3-- Pulse Waveform**



**Fig. 4 -- Typical Junction Capacitance**



**Fig. 5 -- Typical Transient Thermal Impedance**



**Fig. 6 -- Maximum Non-Repetitive Forward Surge Current (Uni-Directional Only)**

