

1SMC_5.0_188A

Stand-off Voltage : 5.0 to 188V

Peak Pulse Power : 1500 W

Features

- 1500W surge capability at 1ms
- Excellent clamping capability
- Low zener impedance
- Fast response time : typically less than 1.0 ps from 0 volt to V_{BR}(min.)
- Typical IR less than 1 μ A above 10V

Mechanical Data

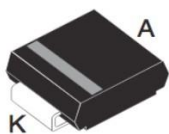
- Case : SMC Molded plastic
- Epoxy : UL94V-O rate flame retardant
- Lead : Lead formed for Surface mount
- Polarity : Color band denotes cathode end
- Mounting position : Any
- Weight : 0.229 gram

Applications

- For Bi-directional use C or CA Suffix
- Electrical characteristics apply in both directions

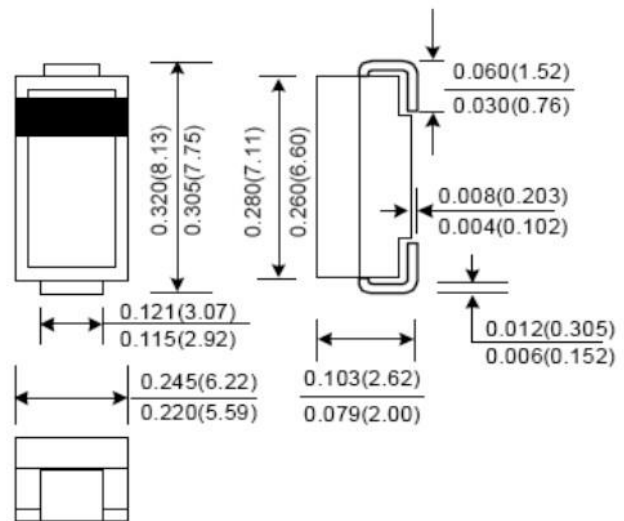
Packing & Order Information

3,000/Reel



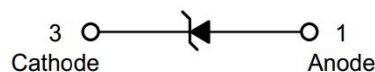
RoHS
COMPLIANT

SMC (DO-214AB)



Dimensions in inches and (millimeter)

Graphic symbol



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified

Symbol	Parameter	Value	Unit
P _{PPM}	Peak Pulse Power Dissipation ^{(1) (2)}	Minimum 1500	W
I _{FSM}	Peak Forward Surge Current per Fig. 5 ⁽²⁾	200	A
I _{PPM}	Maximum Forward Voltage at I _F = 200 mA	See Next Table	A
R θ JA	Typical Thermal Resistance , Junction to Ambient ⁽³⁾	75	°C/W
TJ, Tstg	Operating Junction and Storage Temperature Range	-55 to +150	°C

Notes :

- (1) Non-repetitive Current pulse, per Fig. 3 and derated above T_a = 25 °C per Fig. 1
- (2) Mounted on 0.31x 0.31" (8.0 x 8.0mm) copper pads to each terminal.
- (3) Mounted on minimum recommended pad layout.

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ELECTRICAL CHARACTERISTICS (Rating at 25°C ambient temperature unless otherwise specified)

Type No.	Breakdown Voltage @ T ⁽¹⁾		Working Peak Reverse Voltage	Maximum Reverse Leakage @ VWM	Maximum Peak Pulse Surge Current	Maximum Clamping Voltage @ IPPM
	VBR (V)		IT	VWM	ID	VC
	Min.	Max.	(mA)	(V)	μA	(V)
1SMC5.0A	6.4	7.07	10	5.0	1000	9.2
1SMC6.0A	66.7	7.37	10	6.0	1000	10.3
1SMC6.5A	7.22	7.98	10	6.5	500	11.2
1SMC7.0A	7.78	8.6	10	7.0	200	12.0
1SMC7.5A	8.33	9.21	1.0	7.5	100	12.9
1SMC8.0A	8.89	9.83	1.0	8.0	50	13.6
1SMC8.5A	9.44	10.4	1.0	8.5	20	14.4
1SMC9.0A	10.0	11.1	1.0	9.0	10	15.4
1SMC10A	11.1	12.3	1.0	10	5.0	17.0
1SMC11A	12.2	13.5	1.0	11	5.0	18.2
1SMC12A	13.3	14.7	1.0	12	5.0	19.9
1SMC13A	14.4	15.9	1.0	13	5.0	21.5
1SMC14A	15.6	17.2	1.0	14	5.0	23.2
1SMC15A	16.7	18.5	1.0	15	5.0	24.4
1SMC16A	17.8	19.7	1.0	16	5.0	26.0
1SMC17A	18.9	20.9	1.0	17	5.0	27.6
1SMC18A	20.0	22.1	1.0	18	5.0	29.2
1SMC20A	22.2	24.5	1.0	20	5.0	32.4
1SMC22A	24.4	26.9	1.0	22	5.0	35.5
1SMC24A	26.7	29.5	1.0	24	5.0	38.9
1SMC26A	28.9	31.9	1.0	26	5.0	42.1
1SMC28A	31.1	34.4	1.0	28	5.0	45.4
1SMC30A	33.3	36.8	1.0	30	5.0	48.4
1SMC33A	36.7	40.6	1.0	33	5.0	53.3
1SMC36A	40.0	44.2	1.0	36	5.0	58.1
1SMC40A	44.4	49.1	1.0	40	5.0	64.5
1SMC43A	47.8	52.8	1.0	43	5.0	69.4
1SMC45A	50.0	55.3	1.0	45	5.0	72.7
1SMC48A	53.3	58.9	1.0	48	5.0	77.4

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Type No.	Breakdown Voltage @ T ⁽¹⁾		Working Peak Reverse Voltage	Maximum Reverse Leakage @ VWM	Maximum Peak Pulse Surge Current	Maximum Clamping Voltage @ IPPM
	VBR (V)		IT	VWM	ID	IPPM
	Min.	Max.	(mA)	(V)	μA	(A)
1SMC51A	56.7	62.7	1.0	51	5.0	18.2
1SMC54A	60.0	66.3	1.0	54	5.0	17.2
1SMC58A	64.4	71.2	1.0	58	5.0	16.0
1SMC60A	66.7	73.7	1.0	60	5.0	15.5
1SMC64A	71.1	78.6	1.0	64	5.0	14.6
1SMC70A	77.8	86	1.0	70	5.0	13.3
1SMC75A	83.3	92.1	1.0	75	5.0	12.4
1SMC78A	86.7	95.8	1.0	78	5.0	11.9
1SMC85A	94.4	104	1.0	85	5.0	10.9
1SMC90A	100	111	1.0	90	5.0	10.3
1SMC100A	111	123	1.0	100	5.0	9.3
1SMC110A	122	135	1.0	110	5.0	8.5
1SMC120A	133	147	1.0	120	5.0	7.8
1SMC130A	144	159	1.0	130	5.0	7.2
1SMC150A	167	185	1.0	150	5.0	6.2
1SMC160A	178	197	1.0	160	5.0	5.8
1SMC170A	189	209	1.0	170	5.0	5.50
1SMC188A	209	231	1.0	188	5.0	4.60

Notes :

(1) Pulse test : $t_p \leq 50\text{ms}$.

(2) Surge Current Waveform per Figure 5 and Derate per Figure

(3) For bi-directional types have VWM of 10 Volts and less , the D limit is doubled

(4) For the bi-directional 1SMC5.0CA, the maximum VBR is 7.25V

(5) "1SMC" will be omitted in marking on the diode

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■ RATING AND CHARACTERISTIC CURVES (1SMC5.0 - 1SMC188A)

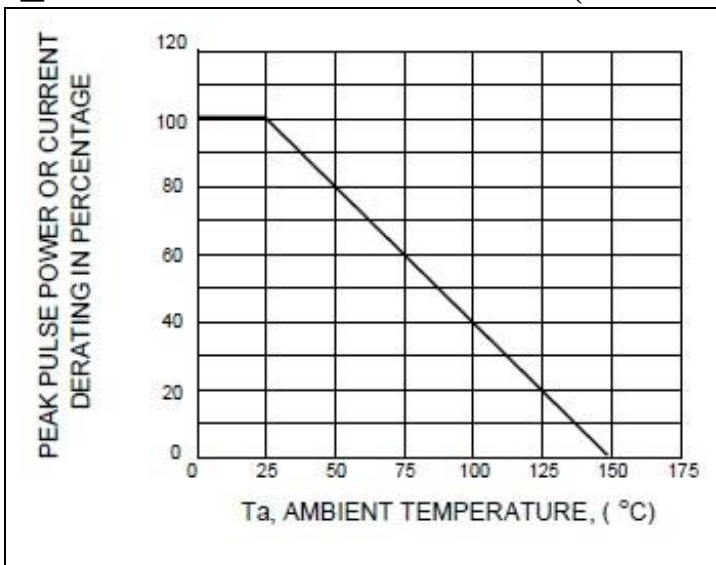


FIG.1 - PULSE DERATING CURVE

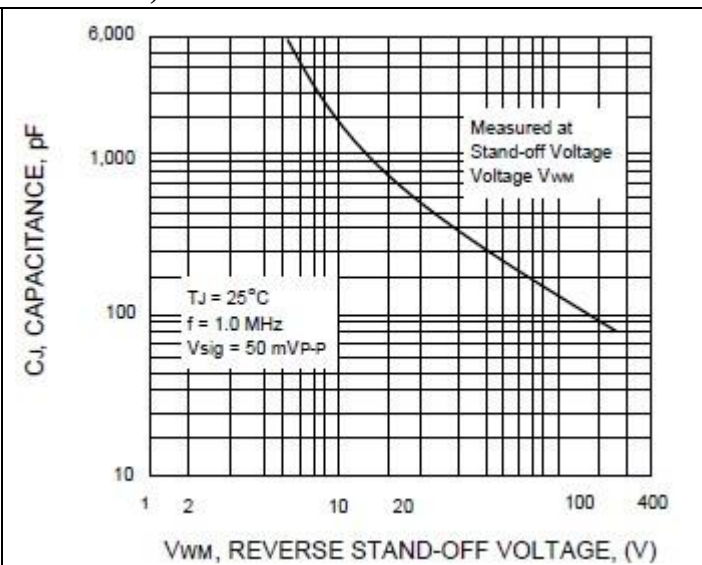


FIG.2 - TYPICAL JUNCTION CAPACITANCE

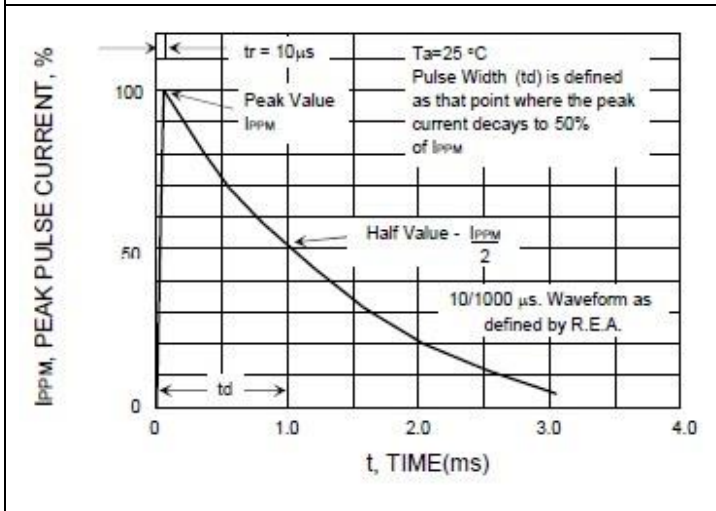


FIG.3 - PULSE WAVEFORM

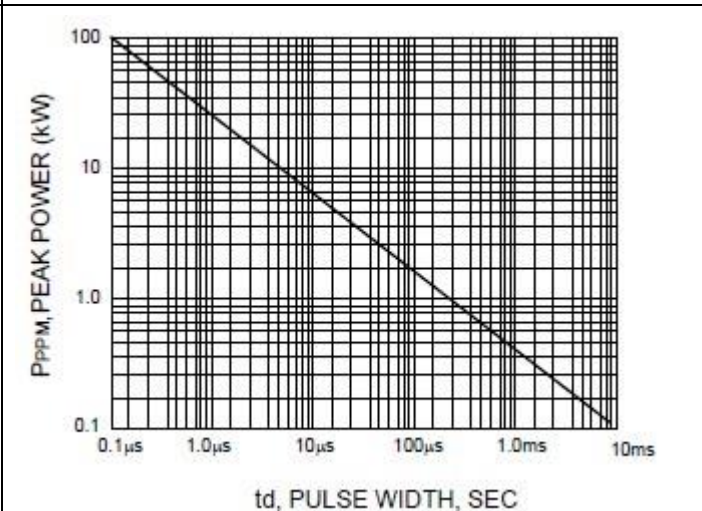


FIG.4 - PEAK PULSE POWER RATING CURVE

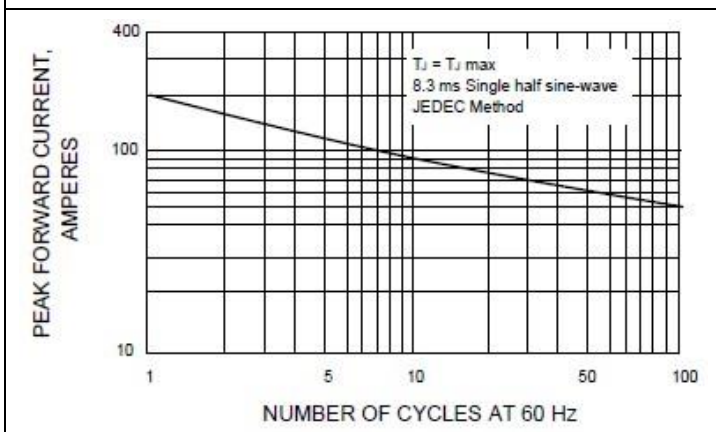


FIG.5 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

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