

SMCG Plastic-Encapsulate Diodes

Transient Voltage Suppressor Diodes

Features

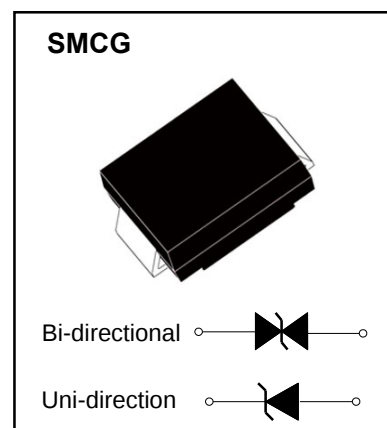
- P_{PPM} 1500W
- V_{RWM} 6.8V- 600V
- Low power loss, high efficiency
- Excellent clamping capability

Applications

- Protect sensitive circuit from damage by high voltage transients
- Lighting, ESD transient voltage protection of IC, system
- Inductive switching load protection of IC, system
- Electrical Fast Transient Immunity protection of IC, system

Mechanical Data

- Case: JEDEC DO-214AB molded plastic
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Solder plated, solderable per MIL- STD-202, Method 208
- Polarity: Color band denotes cathode end



Limiting Values (Absolute Maximum Rating)

Item	Symbol	Unit	Conditions	Max
Peak pulse power dissipation	P_{PPM}	W	with a 10/1000us waveform	1500
Peak pulse current (1)	I_{PPM}	A	with a 10/1000us waveform	See Next Table
Power dissipation	P_D	W	On infinite heat sink at $T_L=75^{\circ}\text{C}$	5.0
Peak forward surge current	I_{FSM}	A	8.3 ms single half sine-wave unidirectional only	200
Operating junction and storage temperature range	T_J, T_{STG}	$^{\circ}\text{C}$		-55 to +150

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Max
Maximum instantaneous forward Voltage (2)	V_F	V	at 100A for unidirectional only	3.5/6.5
Thermal resistance	$R_{\theta JL}$	$^{\circ}\text{C/W}$	Between junction and lead	15
	$R_{\theta JA}$	$^{\circ}\text{C/W}$	Between junction and Ambient	75
	$R_{\theta JC}$	$^{\circ}\text{C/W}$	Between junction and Case	10

Notes:

(1) Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^{\circ}\text{C}$ per Fig.2.

(2) $V_F < 3.5\text{V}$ for devices of $V_{BR} < 200\text{V}$ and $V_F < 6.5\text{V}$ for devices of $V_{BR} > 201\text{V}$

Electrical Characteristics (T_A=25°C unless otherwise noted)

Part Number		Reverse Stand-off Voltage	Breakdown Voltage V _{BR} @ I _T		Test Current	Max. Clamping Voltage @ I _{PP}	Max. Peak Pulse Current	Max. Reverse Leakage @ V _{RWM}
UNI-POLAR	BI-POLAR	V _{RWM} (V)	Min.(V)	Max.(V)	I _T (mA)	V _{C MAX.} (V)	I _{PP} (A)	I _R (uA)
1.5SMC6.8A	1.5SMC6.8CA	5.8	6.45	7.14	10	10.5	144.80	1000
1.5SMC7.5A	1.5SMC7.5CA	6.4	7.13	7.88	10	11.3	134.50	500
1.5SMC8.2A	1.5SMC8.2CA	7.0	7.79	8.61	10	12.1	125.60	200
1.5SMC9.1A	1.5SMC9.1CA	7.8	8.65	9.55	1	13.4	113.40	50
1.5SMC10A	1.5SMC10CA	8.6	9.50	10.50	1	14.5	104.80	10
1.5SMC11A	1.5SMC11CA	9.4	10.50	11.60	1	15.6	97.40	5
1.5SMC12A	1.5SMC12CA	10.2	11.40	12.60	1	16.7	91.00	5
1.5SMC13A	1.5SMC13CA	11.1	12.40	13.70	1	18.2	83.50	1
1.5SMC15A	1.5SMC15CA	12.8	14.30	15.80	1	21.2	71.70	1
1.5SMC16A	1.5SMC16CA	13.6	15.20	16.80	1	22.5	67.60	1
1.5SMC18A	1.5SMC18CA	15.3	17.10	18.90	1	25.5	60.30	1
1.5SMC20A	1.5SMC20CA	17.1	19.00	21.00	1	27.7	54.90	1
1.5SMC22A	1.5SMC22CA	18.8	20.90	23.10	1	30.6	49.70	1
1.5SMC24A	1.5SMC24CA	20.5	22.80	25.20	1	33.2	45.80	1
1.5SMC27A	1.5SMC27CA	23.1	25.70	28.40	1	37.5	40.50	1
1.5SMC30A	1.5SMC30CA	25.6	28.50	31.50	1	41.4	36.70	1
1.5SMC33A	1.5SMC33CA	28.2	31.40	34.70	1	45.7	33.30	1
1.5SMC36A	1.5SMC36CA	30.8	34.20	37.80	1	49.9	30.50	1
1.5SMC39A	1.5SMC39CA	33.3	37.10	41.00	1	53.9	28.20	1
1.5SMC43A	1.5SMC43CA	36.8	40.90	45.20	1	59.3	25.60	1
1.5SMC47A	1.5SMC47CA	40.2	44.70	49.40	1	64.8	23.50	1
1.5SMC51A	1.5SMC51CA	43.6	48.50	53.60	1	70.1	21.70	1
1.5SMC56A	1.5SMC56CA	47.8	53.20	58.80	1	77.0	19.70	1
1.5SMC62A	1.5SMC62CA	53.0	58.90	65.10	1	85.0	17.90	1
1.5SMC68A	1.5SMC68CA	58.1	64.60	71.40	1	92.0	16.50	1
1.5SMC75A	1.5SMC75CA	64.1	71.30	78.80	1	103.0	14.80	1
1.5SMC82A	1.5SMC82CA	70.1	77.90	86.10	1	113.0	13.50	1
1.5SMC91A	1.5SMC91CA	77.8	86.50	95.50	1	125.0	12.20	1
1.5SMC100A	1.5SMC100CA	85.5	95.00	105.00	1	137.0	11.10	1
1.5SMC110A	1.5SMC110CA	94.0	105.0	116.0	1	152.0	10.00	1
1.5SMC120A	1.5SMC120CA	102.0	114.0	126.0	1	165.0	9.20	1
1.5SMC130A	1.5SMC130CA	111.0	124.0	137.0	1	179.0	8.50	1
1.5SMC150A	1.5SMC150CA	128.0	143.0	158.0	1	207.0	7.30	1
1.5SMC160A	1.5SMC160CA	136.0	152.0	168.0	1	219.0	6.90	1
1.5SMC170A	1.5SMC170CA	145.0	162.0	179.0	1	234.0	6.50	1
1.5SMC180A	1.5SMC180CA	154.0	171.0	189.0	1	246.0	6.20	1
1.5SMC200A	1.5SMC200CA	171.0	190.0	210.0	1	274.0	5.50	1
1.5SMC220A	1.5SMC220CA	185.0	209.0	231.0	1	328.0	4.60	1
1.5SMC250A	1.5SMC250CA	214.0	237.0	263.0	1	344.0	4.40	1
1.5SMC300A	1.5SMC300CA	256.0	285.0	315.0	1	414.0	3.70	1
1.5SMC350A	1.5SMC350CA	300.0	332.0	368.0	1	482.0	3.20	1
1.5SMC400A	1.5SMC400CA	342.0	380.0	420.0	1	548.0	2.80	1
1.5SMC440A	1.5SMC440CA	376.0	418.0	462.0	1	602.0	2.50	1
1.5SMC480A	1.5SMC480CA	408.0	456.0	504.0	1	658.0	2.30	1
1.5SMC510A	1.5SMC510CA	434.0	485.0	535.0	1	698.0	2.10	1
1.5SMC530A	1.5SMC530CA	450.0	503.0	556.0	1	725.0	2.10	1
1.5SMC540A	1.5SMC540CA	459.0	513.0	567.0	1	740.0	2.00	1
1.5SMC550A	1.5SMC550CA	467.0	522.5	577.5	1	760.0	2.00	1
1.5SMC600A	1.5SMC600CA	509.0	570.0	630.0	1	820.0	1.80	1

Typical Characteristics

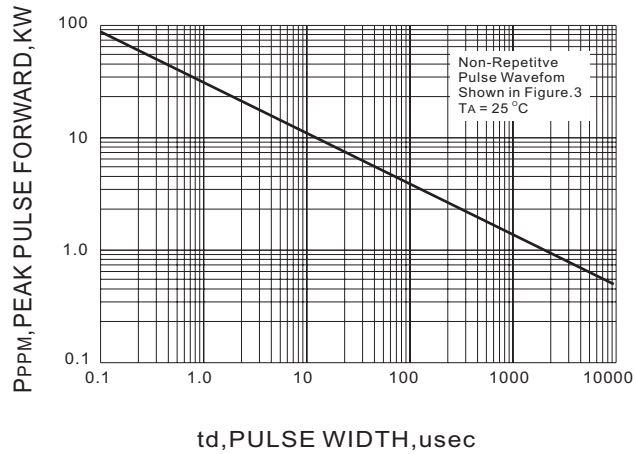


Fig.1 PEAK PULSE POWER RATING VERSUS PULSE TIME CURVE

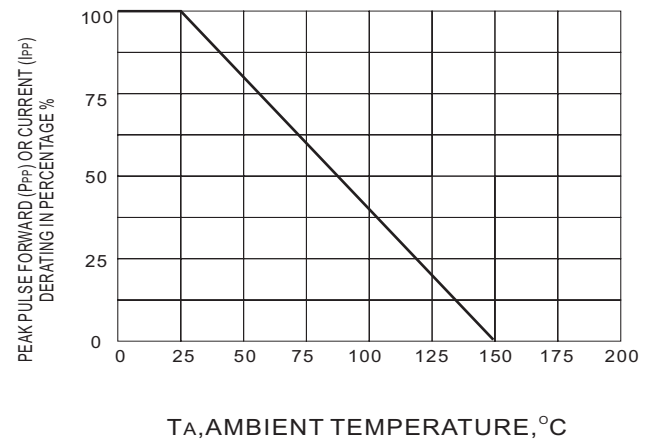


Fig.2 PULSE DERATING CURVE

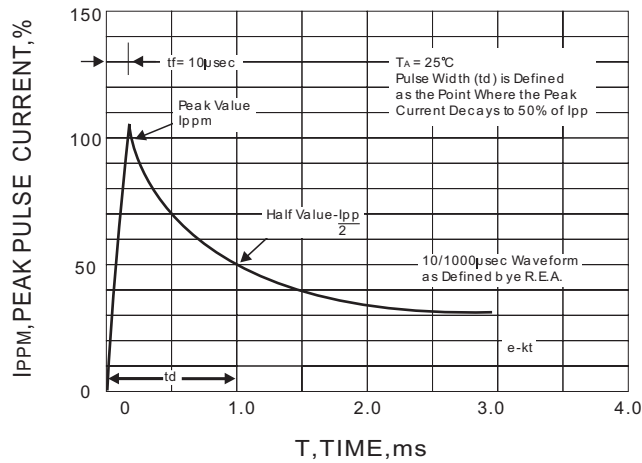


Fig.3 PULSE WAVEFORM

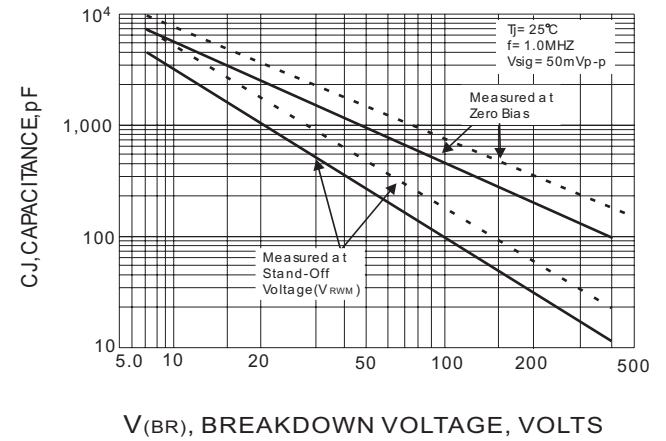


Fig.4 TYPICAL JUNCTION CAPACITANCE

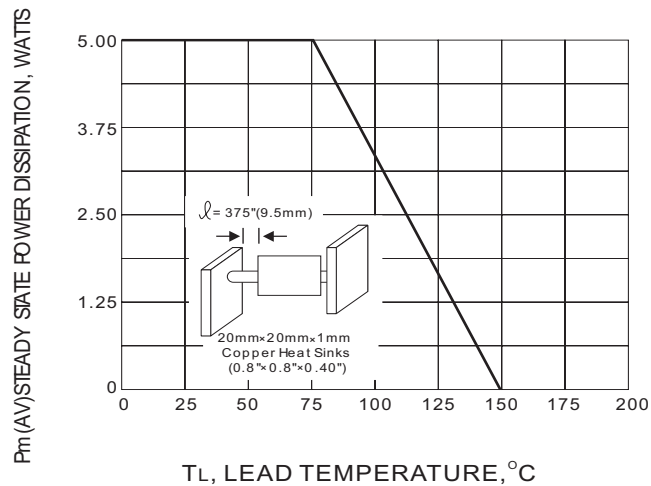


Fig.5 STEADY STATE POWER DERATING

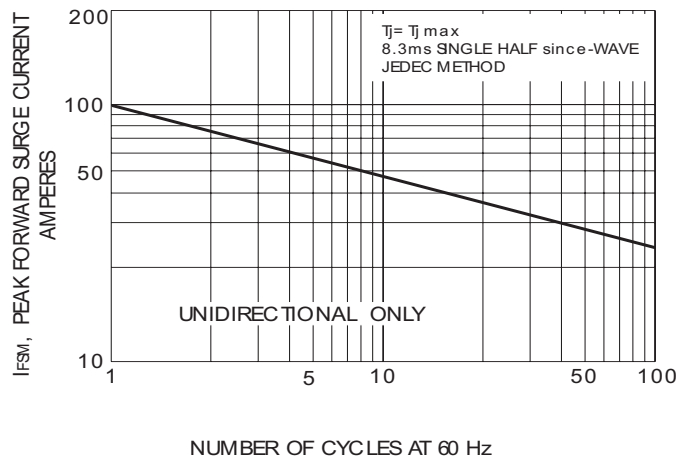
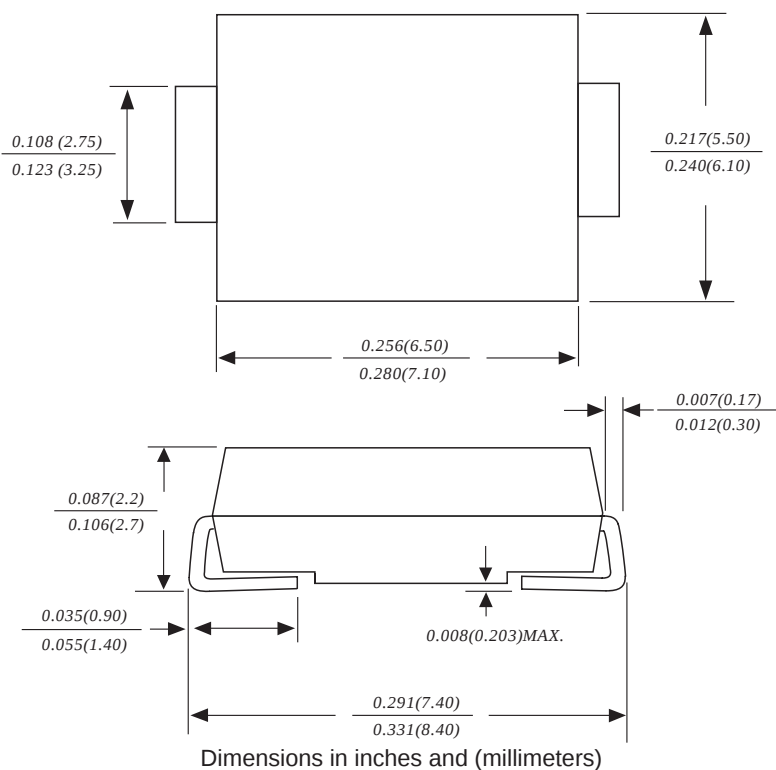
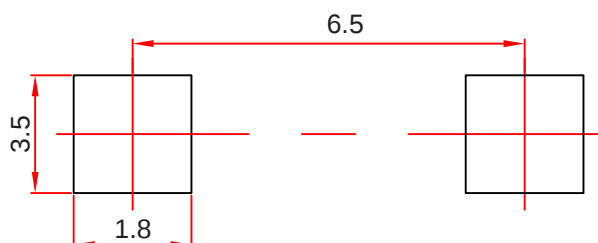


Fig.6 MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT UNIDIRECTIONAL

SMCG Package Outline Dimensions



SMCG Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

Ordering Information

Part Number	Package	Shipping Quantity
1.5SMC6.8(C)A- 1.5SMC600(C)A	SMCG	3000/tape&Reel

Marking Diagram

Uni-direction



XX: From 6.8 To 600

Bi-directional



Reel Taping Specifications For Surface Mount Devices–SMCG

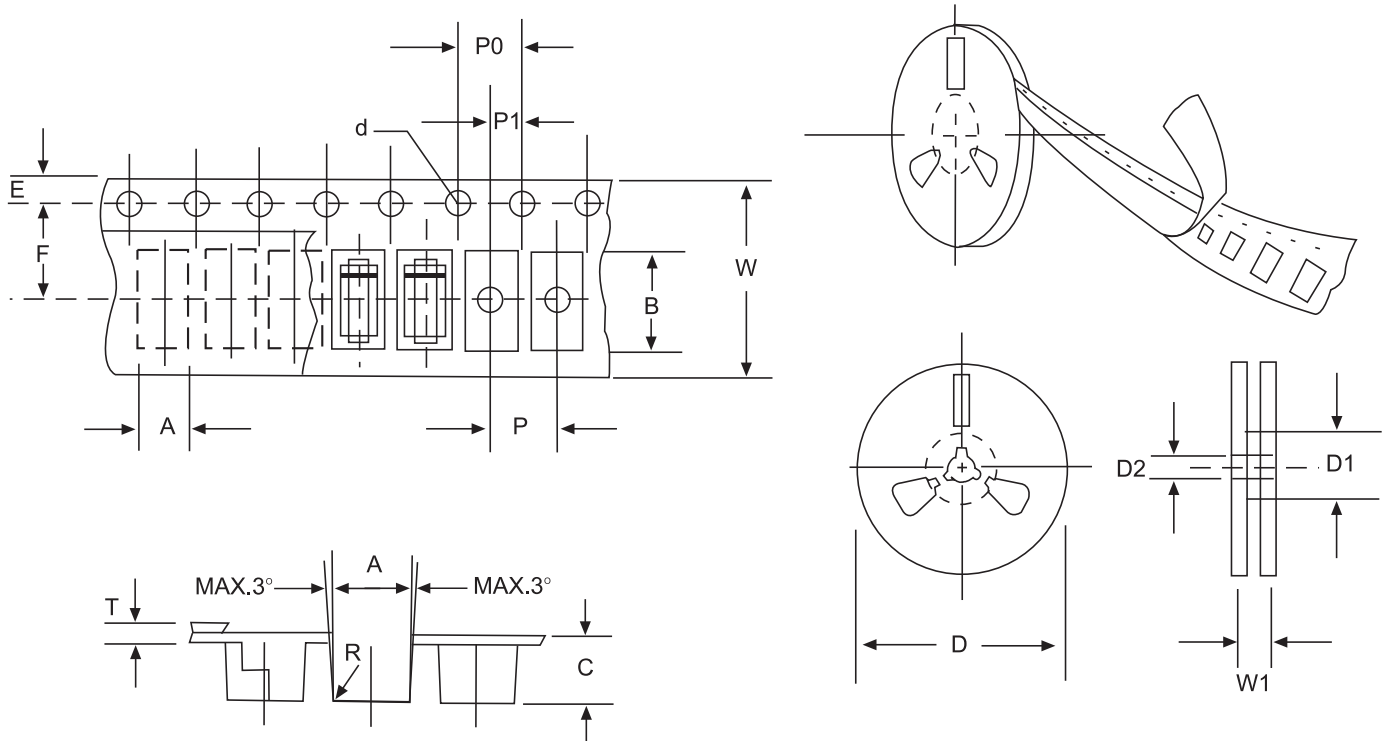


FIG: CONFIGURATION OF SURFACE MOUNTED DEVICES TAPING

ITEM	SYMBOL	SMCG mm(inch)
Carrier width	A	6.05±0.1(0.238±0.004)
Carrier length	B	8.31±0.1(0.327±0.004)
Carrier depth	C	2.70±0.1(0.106±0.004)
Sprocket hole	d	1.55±0.05(0.061±0.002)
Reel outside diameter	D	330±2.0(13±0.079)
Reel inner diameter	D1	75 ±1.0 (2.95 ±0.039)
Feed hole diameter	D2	13±0.5(0.512±0.020)
Sprocket hole position	E	1.75±0.1(0.069±0.004)
Punch hole position	F	7.65±0.05(0.301±0.002)
Punch hole pitch	P	8.0±0.1(0.315±0.004)
Sprocket hole pitch	P0	4.0±0.1(0.157±0.004)
Embossment center	P1	2.0±0.1(0.079±0.004)
Total tape thickness	T	0.3±0.1(0.012±0.004)
Tape width	W	16.0±0.2(0.630±0.008)
Reel width	W1	24.0±2.0(0.945±0.079)

NOTE: Devices are packed in accordance with EIA standard RS-481-A and specification given above.