

SMCG Plastic-Encapsulate Diodes

Transient Voltage Suppressor Diodes

Features

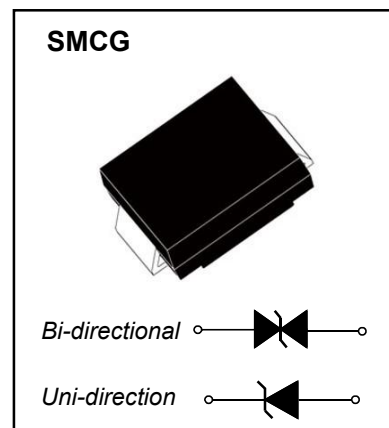
- P_{PPM} 5000W
- V_{RWM} 11V - 440V
- Low power loss, high efficiency
- Excellent clamping capability

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	5000
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 $T_L=75^{\circ}\text{C}$	6.5
Peak forward surge current	I_{FSM}	A	8.3 ms single half sine-wave unidirectional only	300
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	3.5/5.0
Thermal resistance	$R_{\theta JL}$	$^{\circ}\text{C}/\text{W}$	Between junction and lead	15
	$R_{\theta JA}$	$^{\circ}\text{C}/\text{W}$	Between junction and Ambient	75
	$R_{\theta JC}$	$^{\circ}\text{C}/\text{W}$	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 $V_F < 5.0\text{V}$ for devices of $V_{BR} > 201\text{V}$

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

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage V _{BR} @ I _T			Maximum Reverse Leakage I _R @V _{RWM} (uA)	Working Peak Reverse Voltage V _{RWM} (V)	Maximum Reverse Surge Current I _{PP} (A)	Maximum Clamping Voltage V _C @I _{PP} (V)
		Min (V)	Max (V)	I _T (mA)				
5.0SMDJ11A	5.0SMDJ11CA	12.20	13.50	10	800	11.0	274.7	18.2
5.0SMDJ12A	5.0SMDJ12CA	13.30	14.70	10	800	12.0	251.3	19.9
5.0SMDJ13A	5.0SMDJ13CA	14.40	15.90	10	500	13.0	232.6	21.5
5.0SMDJ14A	5.0SMDJ14CA	15.60	17.20	10	200	14.0	215.5	23.2
5.0SMDJ15A	5.0SMDJ15CA	16.70	18.50	1	100	15.0	204.9	24.4
5.0SMDJ16A	5.0SMDJ16CA	17.80	19.70	1	50	16.0	192.3	26.0
5.0SMDJ17A	5.0SMDJ17CA	18.90	20.90	1	20	17.0	181.2	27.6
5.0SMDJ18A	5.0SMDJ18CA	20.00	22.10	1	10	18.0	171.2	29.2
5.0SMDJ19A	5.0SMDJ19CA	21.10	23.30	1	10	19.0	162.4	30.8
5.0SMDJ20A	5.0SMDJ20CA	22.20	24.50	1	5	20.0	154.3	32.4
5.0SMDJ22A	5.0SMDJ22CA	24.40	26.90	1	5	22.0	140.8	35.5
5.0SMDJ24A	5.0SMDJ24CA	26.70	29.50	1	5	24.0	128.5	38.9
5.0SMDJ26A	5.0SMDJ26CA	28.90	31.90	1	5	26.0	118.8	42.1
5.0SMDJ28A	5.0SMDJ28CA	31.10	34.40	1	5	28.0	110.1	45.4
5.0SMDJ30A	5.0SMDJ30CA	33.30	36.80	1	5	30.0	103.3	48.4
5.0SMDJ33A	5.0SMDJ33CA	36.70	40.60	1	5	33.0	93.8	53.3
5.0SMDJ36A	5.0SMDJ36CA	40.00	44.20	1	5	36.0	86.1	58.1
5.0SMDJ40A	5.0SMDJ40CA	44.40	49.10	1	5	40.0	77.5	64.5
5.0SMDJ43A	5.0SMDJ43CA	47.80	52.80	1	5	43.0	72.0	69.4
5.0SMDJ45A	5.0SMDJ45CA	50.00	55.30	1	5	45.0	68.8	72.7
5.0SMDJ48A	5.0SMDJ48CA	53.30	58.90	1	5	48.0	64.6	77.4
5.0SMDJ51A	5.0SMDJ51CA	56.70	62.70	1	5	51.0	60.7	82.4
5.0SMDJ54A	5.0SMDJ54CA	60.00	66.30	1	5	54.0	57.4	87.1
5.0SMDJ58A	5.0SMDJ58CA	64.40	71.20	1	5	58.0	53.4	93.6
5.0SMDJ60A	5.0SMDJ60CA	66.70	73.70	1	5	60.0	51.7	96.8
5.0SMDJ64A	5.0SMDJ64CA	71.10	78.60	1	5	64.0	48.5	103.0
5.0SMDJ70A	5.0SMDJ70CA	77.80	86.00	1	5	70.0	44.2	113.0
5.0SMDJ75A	5.0SMDJ75CA	83.30	92.10	1	5	75.0	41.3	121.0
5.0SMDJ78A	5.0SMDJ78CA	86.70	95.80	1	5	78.0	39.7	126.0
5.0SMDJ80A	5.0SMDJ80CA	88.80	97.60	1	5	80.0	38.6	129.6
5.0SMDJ85A	5.0SMDJ85CA	94.40	104.0	1	5	85.0	36.5	137.0
5.0SMDJ90A	5.0SMDJ90CA	100.0	111.0	1	5	90.0	34.2	146.0
5.0SMDJ100A	5.0SMDJ100CA	111.0	123.0	1	5	100.0	30.9	162.0
5.0SMDJ110A	5.0SMDJ110CA	122.0	135.0	1	5	110.0	28.2	177.0
5.0SMDJ120A	5.0SMDJ120CA	133.0	147.0	1	5	120.0	25.9	193.0
5.0SMDJ130A	5.0SMDJ130CA	144.0	159.0	1	5	130.0	23.9	209.0
5.0SMDJ140A	5.0SMDJ140CA	155.0	171.0	1	5	140.0	22.0	226.8
5.0SMDJ150A	5.0SMDJ150CA	167.0	185.0	1	5	150.0	20.6	243.0
5.0SMDJ160A	5.0SMDJ160CA	178.0	197.0	1	5	160.0	19.3	259.0
5.0SMDJ170A	5.0SMDJ170CA	189.0	209.0	1	5	170.0	18.2	275.0
5.0SMDJ180A	5.0SMDJ180CA	200.0	220.0	1	5	180.0	17.1	291.6
5.0SMDJ190A	5.0SMDJ190CA	211.0	232.0	1	5	190.0	16.2	307.8
5.0SMDJ200A	5.0SMDJ200CA	224.0	247.0	1	5	200.0	15.4	324.0
5.0SMDJ220A	5.0SMDJ220CA	246.0	272.0	1	5	220.0	14.0	356.0
5.0SMDJ250A	5.0SMDJ250CA	279.0	309.0	1	5	250.0	12.3	405.0
5.0SMDJ300A	5.0SMDJ300CA	335.0	371.0	1	5	300.0	10.3	486.0
5.0SMDJ350A	5.0SMDJ350CA	391.0	432.0	1	5	350.0	8.8	567.0
5.0SMDJ400A	5.0SMDJ400CA	447.0	494.0	1	5	400.0	7.7	648.0
5.0SMDJ440A	5.0SMDJ440CA	492.0	543.0	1	5	440.0	7.0	713.0

Note:

1. Suffix 'A' denotes 5% tolerance device. Without 'A' denotes 10% tolerance device
2. Add suffix 'C' or 'CA' after part number to specify Bi-directional devices
3. For Bi-Directional devices having V_R of 20 volts and under, the I_R limit is double

Typical Characteristics

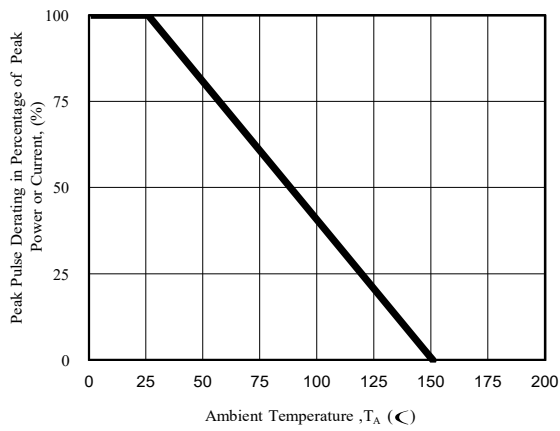


Fig. 1 - Pulse Derating Curve

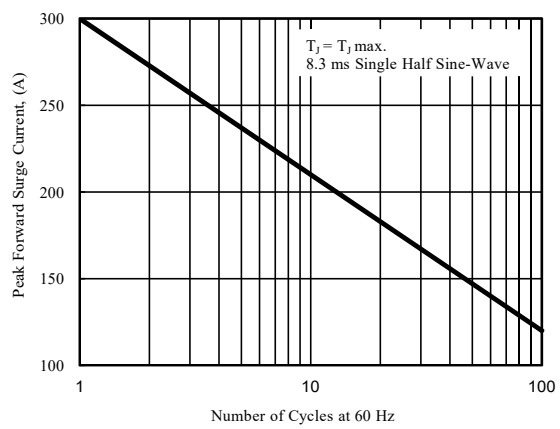


Fig. 2 - Maximum Non-Repetitive Surge Current

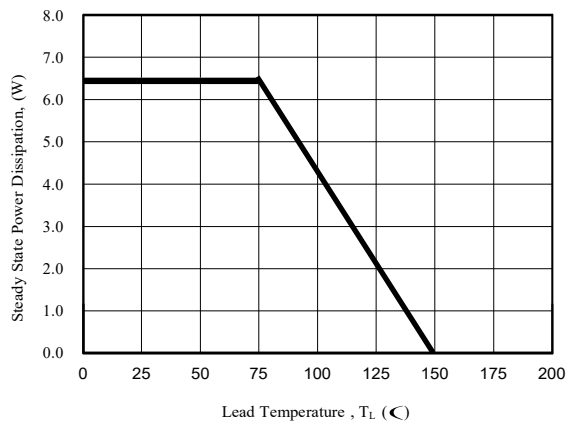


Fig. 3 - Steady State Power Derating Curve

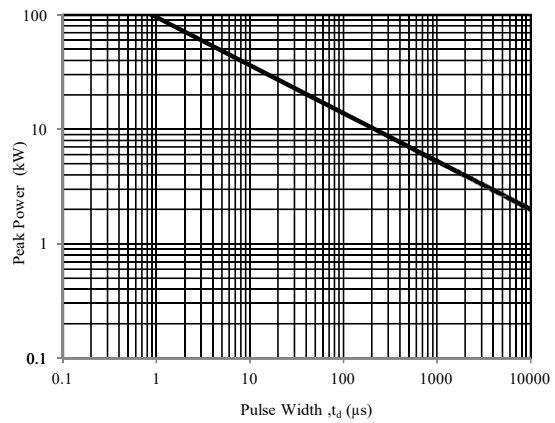


Fig. 4 - Peak Pulse Power Rating Curve

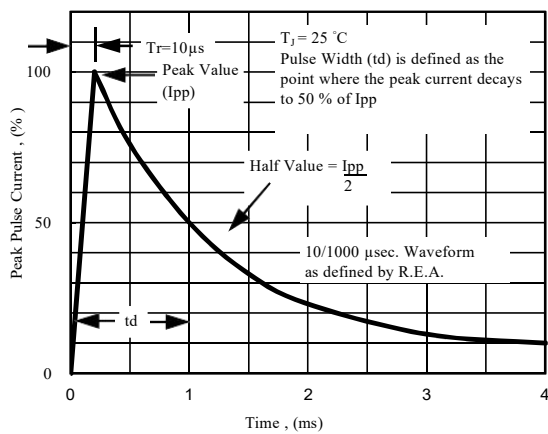


Fig. 5 - Pulse Waveform

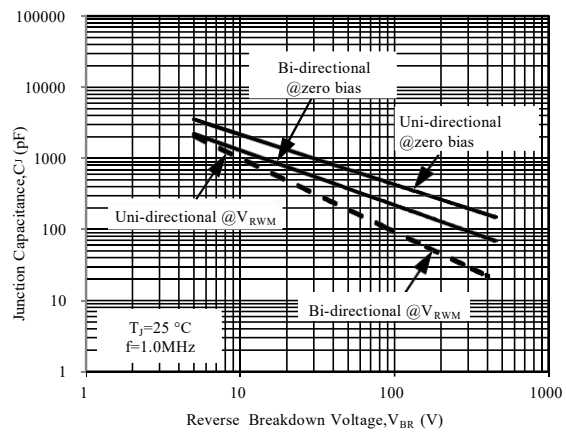
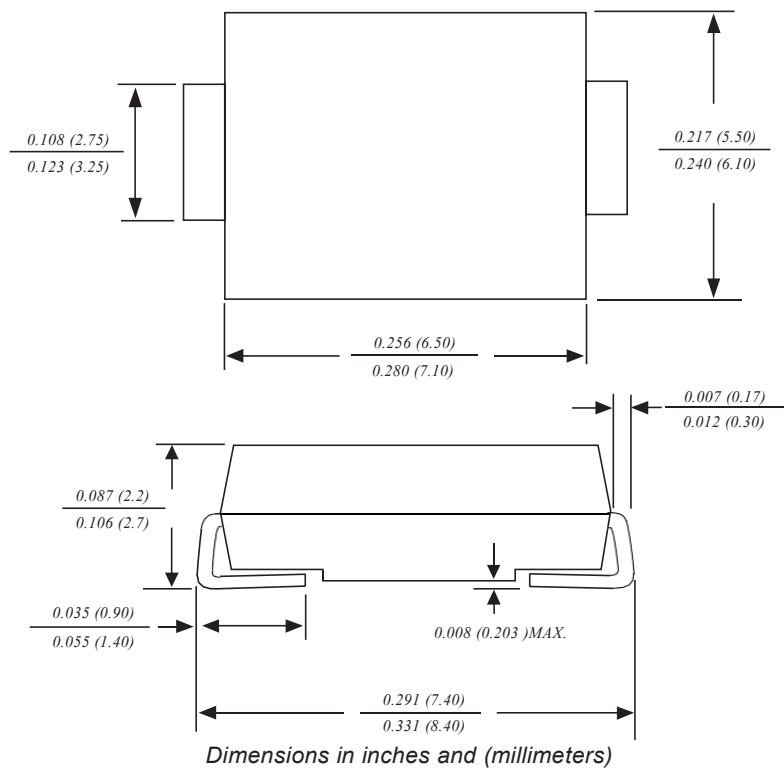
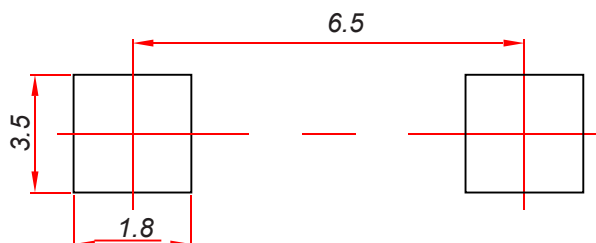


Fig. 6 - Typical Junction Capacitance

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
5.0SMDJ11(C)A- 5.0SMDJ440(C)A	SMCG	3000/tape&Reel

Marking Diagram

Uni-direction



XX: From 11 To 440

Bi-directional



Reel Taping Specifications For Surface Mount Devices–SMCG

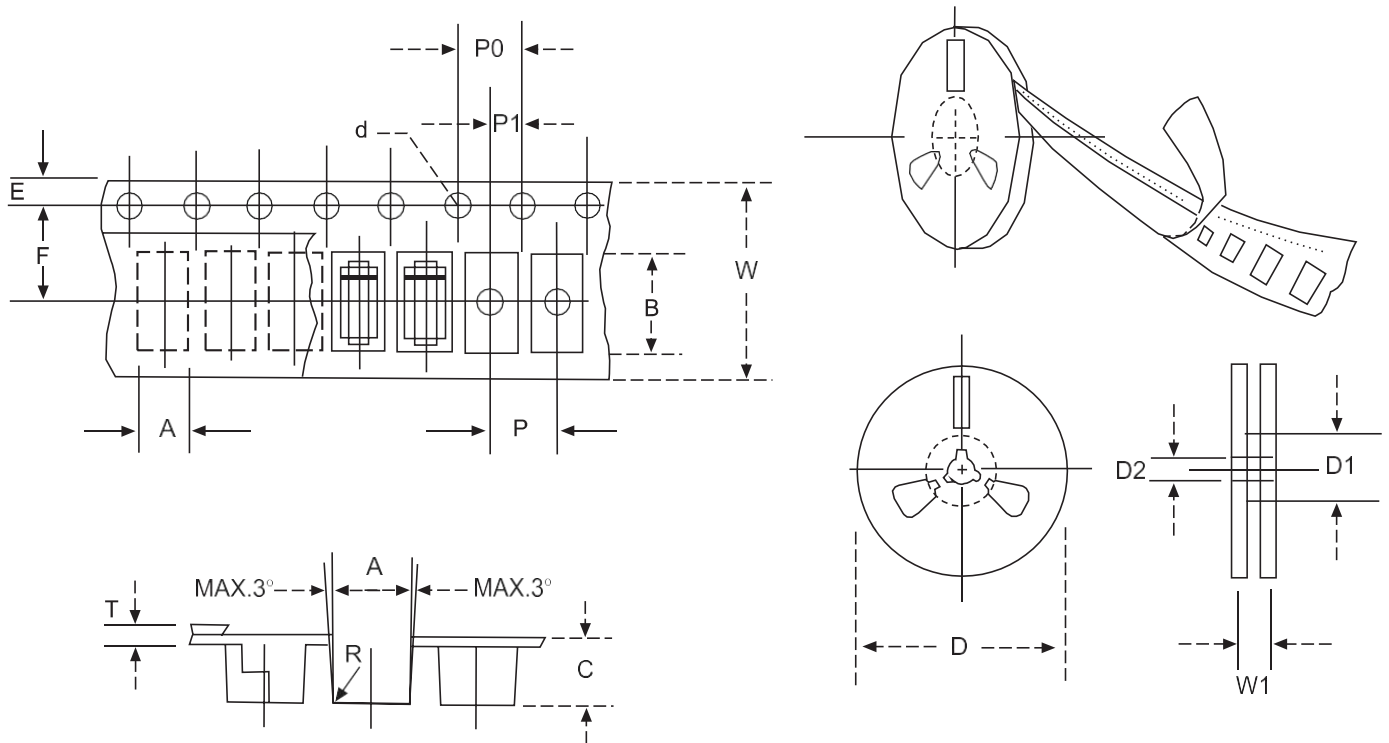


FIG: CONFIGURATION OF SURFACE MOUNTED DEVICES TAPING

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.