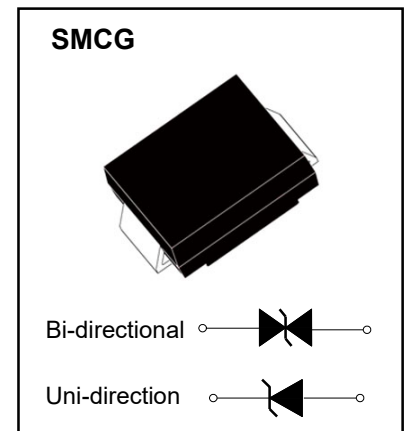


SMCG Plastic-Encapsulate Diode

SMCJ SERIES Transient Voltage Suppressor Diodes

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
V_{RWM}	5-440	V
I_R	600-1	μA
I_{PP}	163.04-2.1	A
V_C	9.2-713.0	V
P_{PPM}	1500	W



FEATURES

- For surface mounted applications in order to optimize board space
- Glass passivated chip junction
- Excellent clamping capability
- Low reverse leakage
- Very fast response time
- 1500 W peak pulse power capability with a 10/1000 us waveform by 0.01% duty cycle
- RoHS Compliant
- ESD protection of data lines in accordance with IEC 61000-4-2, 30 kV(Air),30 kV (Contact)

ADVANTAGES

- Case: SMC(DO-214AB)
- Molding compound meets UL 94V-0 flammability rating
- Moisture sensitivity level: level 1, per J-STD-020
- Polarity: Color band denotes cathode end

MARKING



Cathode Band:for uni-directional products only

C***CA = Device code, ***=Voltage

C:Bi-directional or not

XXXX=Data Code

Electrical Characteristics ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

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 (note 1)	I_{PPM}	A	with a 10/1000us waveform	See Next Table
Power dissipation	P_D	W	On infinite heat sink at $T_L=50^{\circ}\text{C}$	6.5
Peak forward surge current	I_{FSM}	A	8.3 ms single half sine-wave unidirectional only (note 2)	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 (note 3)	V_F	V	at 100A for uni-directional only	3.5/5.0
Thermal resistance (note 4)	$R_{\theta JL}$	$^{\circ}\text{C}/\text{W}$	junction to lead $T_L=50^{\circ}\text{C}$	15
	$R_{\theta JLA}$	$^{\circ}\text{C}/\text{W}$	junction to ambient $T_A=25^{\circ}\text{C}$	75

Notes:

- (1) Non-repetitive current pulse at $T_A=25^{\circ}\text{C}$, per Fig. 3 and derated above $T_A=25^{\circ}\text{C}$ per Fig.2
- (2) 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minutes maximum
- (3) $V_F < 3.5\text{V}$ for devices of $V_{BR} \leq 200\text{V}$ and $V_F < 5.0\text{V}$ for devices of $V_{BR} > 201\text{V}$
- (4) Thermal resistance from junction to ambient and from junction to lead mounted on 1" x 1" (25.4mm x 25.4mm) FR4 PCB, double sided copper, with minimum pad layout

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

Part Number		Device Marking Code		Breakdown Voltage VBR@IT		Test Current	Max Reverse Leakage @V _{RWM}	Reverse Standoff Voltage	Max Peak Pulse Current ⁽¹⁾	Max Clamping Voltage @I _{PP}
UNI	BI	UNI	BI	Min.(V)	Max.(V)	IT(mA)	I _R (uA)	V _{RWM} (V)	I _{PP} (A)	V _C (V)
SMCJ5.0A	SMCJ5.0CA	C5.0A XXXX	C5.0CA XXXX	6.40	7.00	10	600	5.0	163.04	9.2
SMCJ6.0A	SMCJ6.0CA	C6.0A XXXX	C6.0CA XXXX	6.67	7.37	10	300	6.0	145.63	10.3
SMCJ6.5A	SMCJ6.5CA	C6.5A XXXX	C6.5CA XXXX	7.22	7.98	10	200	6.5	133.93	11.2
SMCJ7.0A	SMCJ7.0CA	C7.0A XXXX	C7.0CA XXXX	7.78	8.60	10	100	7.0	125.00	12.0
SMCJ7.5A	SMCJ7.5CA	C7.5A XXXX	C7.5CA XXXX	8.33	9.21	1	50	7.5	116.28	12.9
SMCJ8.0A	SMCJ8.0CA	C8.0A XXXX	C8.0CA XXXX	8.89	9.83	1	20	8.0	110.29	13.6
SMCJ8.5A	SMCJ8.5CA	C8.5A XXXX	C8.5CA XXXX	9.44	10.4	1	10	8.5	104.17	14.4
SMCJ9.0A	SMCJ9.0CA	C9.0A XXXX	C9.0CA XXXX	10.0	11.1	1	5	9.0	97.40	15.4
SMCJ10A	SMCJ10CA	C10A XXXX	C10CA XXXX	11.1	12.3	1	5	10	88.24	17.0
SMCJ11A	SMCJ11CA	C11A XXXX	C11CA XXXX	12.2	13.5	1	5	11	82.42	18.2
SMCJ12A	SMCJ12CA	C12A XXXX	C12CA XXXX	13.3	14.7	1	5	12	75.38	19.9
SMCJ13A	SMCJ13CA	C13A XXXX	C13CA XXXX	14.4	15.9	1	1	13	69.77	21.5
SMCJ14A	SMCJ14CA	C14A XXXX	C14CA XXXX	15.6	17.2	1	1	14	64.66	23.2
SMCJ15A	SMCJ15CA	C15A XXXX	C15CA XXXX	16.7	18.5	1	1	15	61.48	24.4
SMCJ16A	SMCJ16CA	C16A XXXX	C16CA XXXX	17.8	19.7	1	1	16	57.69	26.0
SMCJ17A	SMCJ17CA	C17A XXXX	C17CA XXXX	18.9	20.9	1	1	17	54.35	27.6
SMCJ18A	SMCJ18CA	C18A XXXX	C18CA XXXX	20.0	22.1	1	1	18	51.37	29.2
SMCJ20A	SMCJ20CA	C20A XXXX	C20CA XXXX	22.2	24.5	1	1	20	46.30	32.4
SMCJ22A	SMCJ22CA	C22A XXXX	C22CA XXXX	24.4	26.9	1	1	22	42.25	35.5
SMCJ24A	SMCJ24CA	C24A XXXX	C24CA XXXX	26.7	29.5	1	1	24	38.56	38.9

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

Part Number		Device Marking Code		Breakdown Voltage VBR@IT		Test Current	Max Reverse Leakage @V _{RWM}	Reverse Standoff Voltage	Max Peak Pulse Current ⁽¹⁾	Max Clamping Voltage @I _{PP}
UNI	BI	UNI	BI	Min.(V)	Max.(V)	IT(mA)	I _R (uA)	V _{RWM} (V)	I _{PP} (A)	V _C (V)
SMCJ26A	SMCJ26CA	C26A XXXX	C26CA XXXX	28.9	31.9	1	1	26	35.63	42.1
SMCJ28A	SMCJ28CA	C28A XXXX	C28CA XXXX	31.1	34.4	1	1	28	33.04	45.4
SMCJ30A	SMCJ30CA	C30A XXXX	C30CA XXXX	33.3	36.8	1	1	30	30.99	48.4
SMCJ33A	SMCJ33CA	C33A XXXX	C33CA XXXX	36.7	40.6	1	1	33	28.14	53.3
SMCJ36A	SMCJ36CA	C36A XXXX	C36CA XXXX	40.0	44.2	1	1	36	25.82	58.1
SMCJ40A	SMCJ40CA	C40A XXXX	C40CA XXXX	44.4	49.1	1	1	40	23.26	64.5
SMCJ43A	SMCJ43CA	C43A XXXX	C43CA XXXX	47.8	52.8	1	1	43	21.61	69.4
SMCJ45A	SMCJ45CA	C45A XXXX	C45CA XXXX	50.0	55.3	1	1	45	20.63	72.7
SMCJ48A	SMCJ48CA	C48A XXXX	C48CA XXXX	53.3	58.9	1	1	48	19.38	77.4
SMCJ51A	SMCJ51CA	C51A XXXX	C51CA XXXX	56.7	62.7	1	1	51	18.20	82.4
SMCJ54A	SMCJ54CA	C54A XXXX	C54CA XXXX	60.0	66.3	1	1	54	17.22	87.1
SMCJ58A	SMCJ58CA	C58A XXXX	C58CA XXXX	64.4	71.2	1	1	58	16.03	93.6
SMCJ60A	SMCJ60CA	C60A XXXX	C60CA XXXX	66.7	73.7	1	1	60	15.50	96.8
SMCJ64A	SMCJ64CA	C64A XXXX	C64CA XXXX	71.1	78.6	1	1	64	14.56	103
SMCJ70A	SMCJ70CA	C70A XXXX	C70CA XXXX	77.8	86.0	1	1	70	13.27	113
SMCJ75A	SMCJ75CA	C75A XXXX	C75CA XXXX	83.3	92.1	1	1	75	12.40	121
SMCJ78A	SMCJ78CA	C78A XXXX	C78CA XXXX	86.7	95.8	1	1	78	11.90	126
SMCJ80A	SMCJ80CA	C80A XXXX	C80CA XXXX	88.8	97.6	1	1	80	11.60	129
SMCJ85A	SMCJ85CA	C85A XXXX	C85CA XXXX	94.4	104.0	1	1	85	10.95	137
SMCJ90A	SMCJ90CA	C90A XXXX	C90CA XXXX	100	111	1	1	90	10.27	146

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

Part Number		Device Marking Code		Breakdown Voltage VBR@IT		Test Current	Max Reverse Leakage @V _{RWM}	Reverse Standoff Voltage	Max Peak Pulse Current ⁽¹⁾	Max Clamping Voltage @I _{PP}
UNI	BI	UNI	BI	Min.(V)	Max.(V)	IT(mA)	I _R (uA)	V _{RWM} (V)	I _{PP} (A)	V _C (V)
SMCJ100A	SMCJ100CA	C100A XXXX	C100CA XXXX	111	123	1	1	100	9.26	162
SMCJ110A	SMCJ110CA	C110A XXXX	C110CA XXXX	122	135	1	1	110	8.47	177
SMCJ120A	SMCJ120CA	C120A XXXX	C120CA XXXX	133	147	1	1	120	7.77	193
SMCJ130A	SMCJ130CA	C130A XXXX	C130CA XXXX	144	159	1	1	130	7.18	209
SMCJ150A	SMCJ150CA	C150A XXXX	C150CA XXXX	167	185	1	1	150	6.17	243
SMCJ160A	SMCJ160CA	C160A XXXX	C160CA XXXX	178	197	1	1	160	5.79	259
SMCJ170A	SMCJ170CA	C170A XXXX	C170CA XXXX	189	209	1	1	170	5.45	275
SMCJ180A	SMCJ180CA	C180A XXXX	C180CA XXXX	200	220	1	1	180	5.15	291
SMCJ190A	SMCJ190CA	C190A XXXX	C190CA XXXX	211	232	1	1	190	4.89	307
SMCJ200A	SMCJ200CA	C200A XXXX	C200CA XXXX	224	247	1	1	200	4.63	324
SMCJ220A	SMCJ220CA	C220A XXXX	C220CA XXXX	246	272	1	1	220	4.21	356
SMCJ250A	SMCJ250CA	C250A XXXX	C250CA XXXX	279	309	1	1	250	3.70	405
SMCJ300A	SMCJ300CA	C300A XXXX	C300CA XXXX	335	371	1	1	300	3.09	486
SMCJ350A	SMCJ350CA	C350A XXXX	C350CA XXXX	391	432	1	1	350	2.65	567
SMCJ400A	SMCJ400CA	C400A XXXX	C400CA XXXX	447	494	1	1	400	2.31	648
SMCJ440A	SMCJ440CA	C440A XXXX	C440CA XXXX	492	543	1	1	440	2.10	713

Notes:

(1) Waveform of SMCJ5.0A -SMCJ440CA are defined as per fig.3

Figure 1. Peak Pulse Power Rating Curve

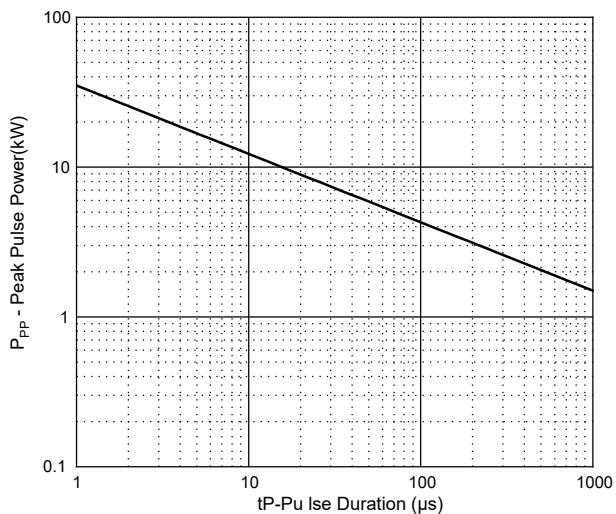


Figure 2. Pulse Derating Curve

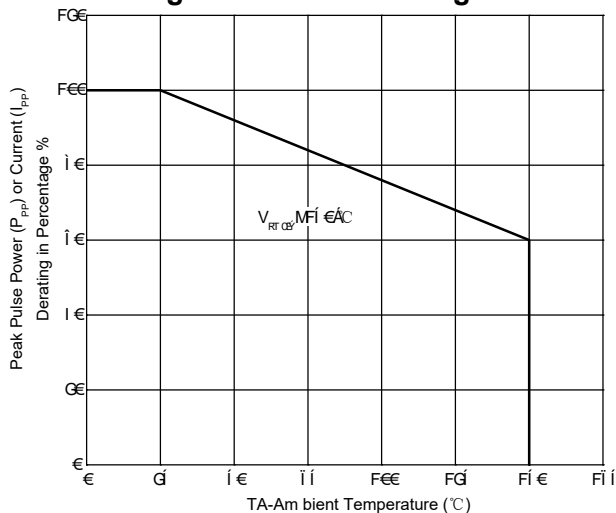


Figure 3. Pulse Waveform

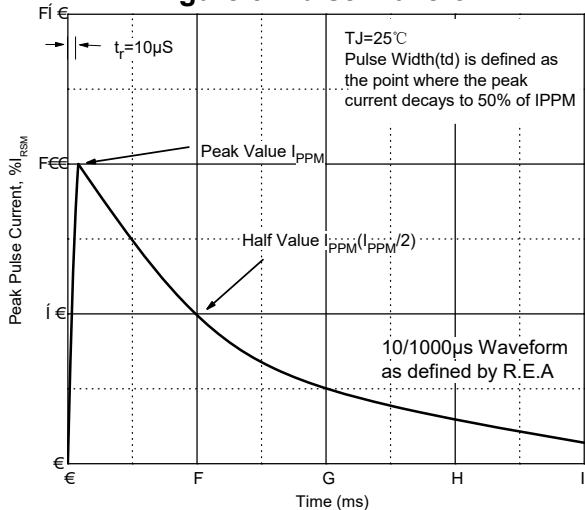


Figure 4. Typical Junction Capacitance

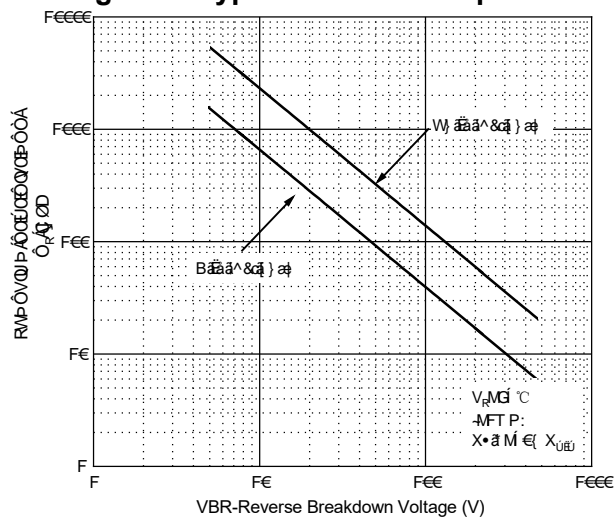


Figure 5. Steady State Power Dissipation Derating Curve

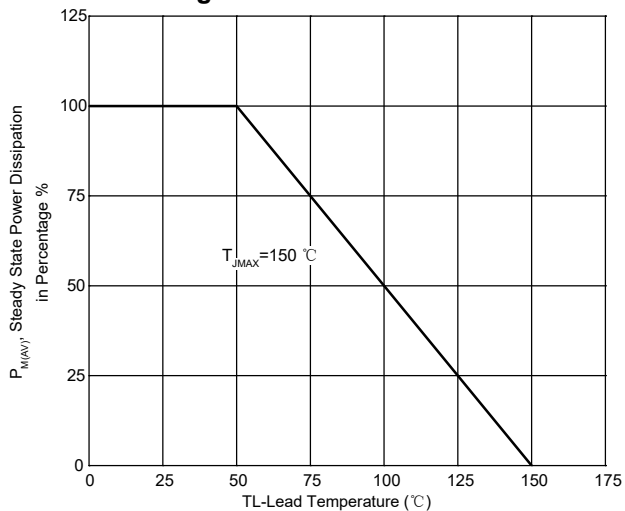
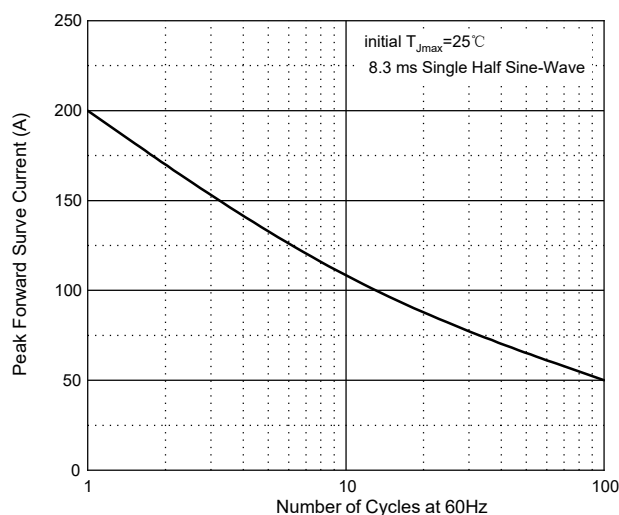
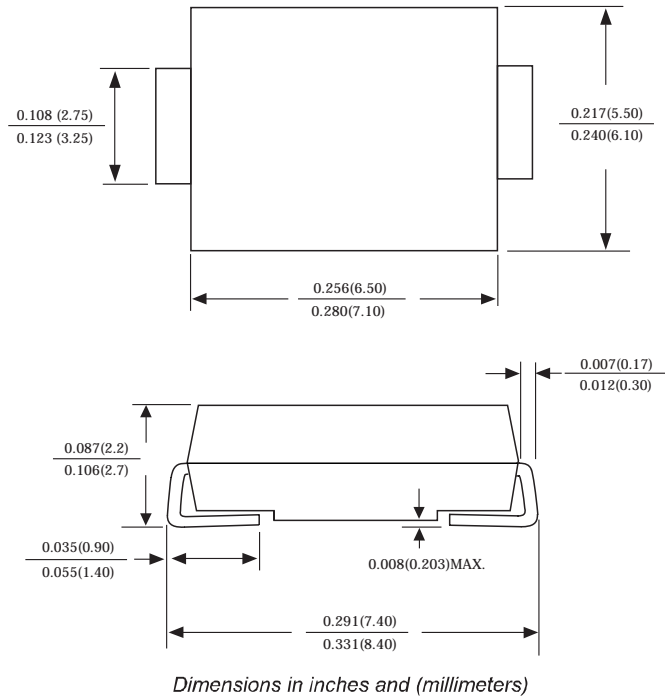


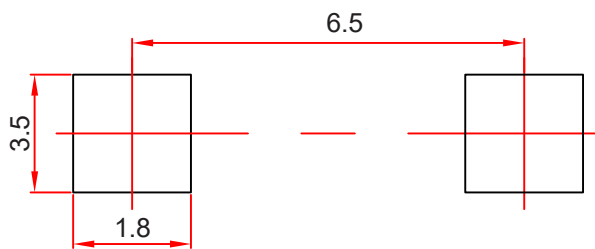
Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



SMCG Package Outline Dimensions



SMCG Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.05 mm.
3. The pad layout is for reference purposes only.

NOTICE

JSCJ reserves the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JSCJ does not assume any liability arising out of the application or use of any product described herein.

Reel Taping Specifications for Surface Mount Devices- SMCG

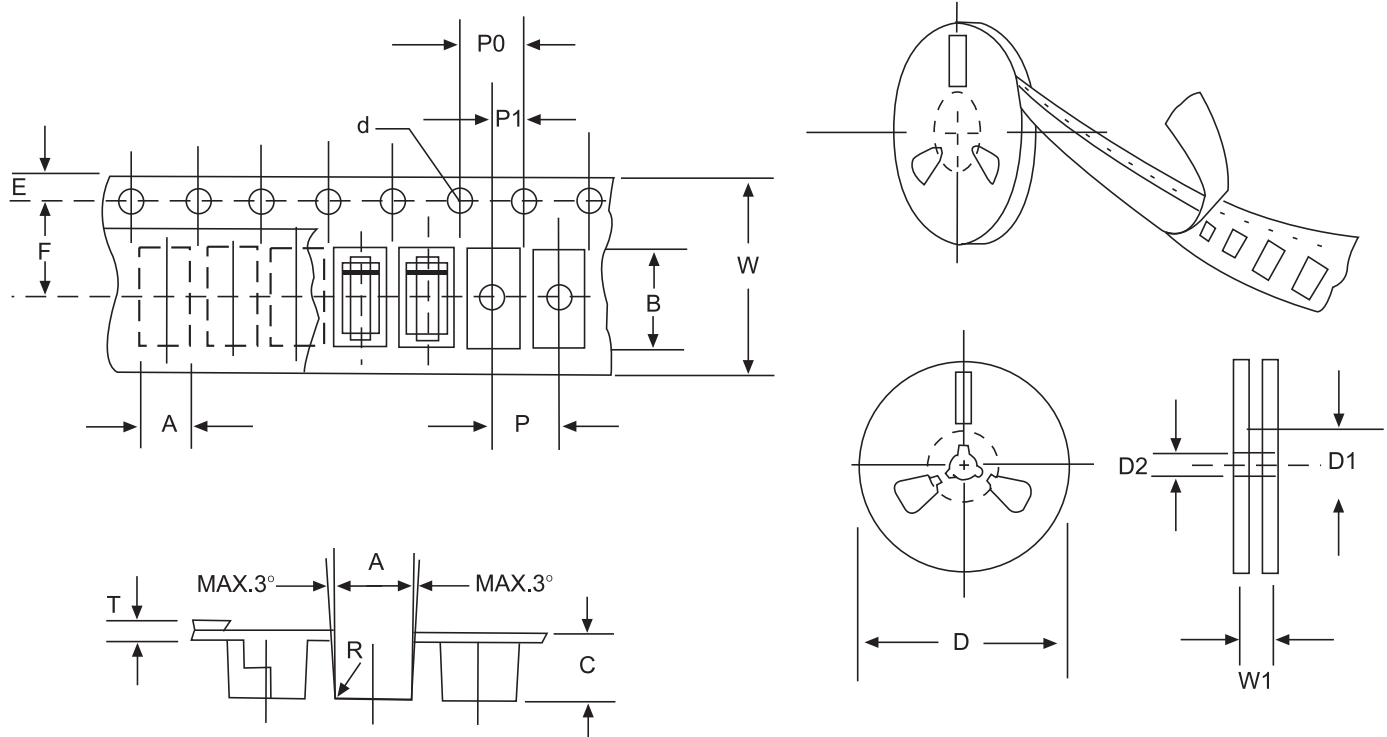


FIG: CONFIGURATION OF SURFACE MOUNTED DEVICES TAPING

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.