SMC Plastic-Encapsulate Diodes

Transient Voltage Suppressor Diodes

Features

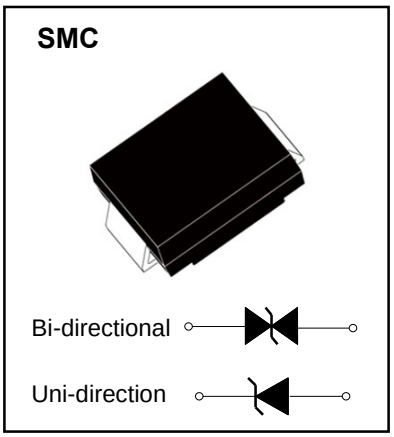
- P_{PP} 1500W
- V_{RWM} 5.0V- 440V
- Glass passivated chip

Applications

- Clamping Voltage

Marking

- SMCJ
  XXCA/XXA/XX
  XX : From 5.0 To 440



Limiting Values (Absolute Maximum Rating)

Item	Symbol	Unit	Conditions	Max
Peak power dissipation	P_{PPM}	W	with a 10/1000us waveform	1500
Peak pulse current	I_{PPM}	A	with a 10/1000us waveform	See Next Table
Power dissipation	P_D	W	On infinite heat sink at T_L=75℃	6.5
Peak forward surge current(2)	I_{FSM}	A	8.3 ms single half sine-wave unidirectional only	200
Operating junction and storage temperature range	T_J,T_{STG}	℃		-55 to +150

Electrical Characteristics（T_a=25℃ Unless otherwise specified）

Item	Symbol	Unit	Conditions	Max
Maximum instantaneous forward Voltage (3)	V_F	V	at 100A for unidirectional only	3.5/5.0
Thermal resistance	$R_{\theta JL}$	℃/W	junction to lead	75
	$R_{\theta JA}$	℃/W	junction to ambient	15

Notes:

(1) Non-repetitive current pulse, per Fig. 3 and derated above T_A= 25℃per Fig.2.

(2) Mounted on 0.31 x 0.31" (8.0 x 8.0 mm) copper pads to each terminal

(3) VF<3.5V for devices of VBR<200V and VF<5.0V for devices of VBR>201V

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Electrical Characteristics (T_A=25℃ unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	V_{BR}@I_T Breakdown Voltage V_{BR}@I_T			I_R @V_{WM} Maximum Reverse Leakage I_R (3) (μ A)	V_{RWM} Working Peak Reverse Voltage V_{RWM} (V)	IPP Maximum Reverse Surge Current IPP(2) (A)	Maximum Clamping Voltage Vc @ I_{PP} (V)
		Min(V)	Max (V)	IT(1)(mA)				
SMCJ5.0	SMCJ5.0C	6.40	7.30	10.0	1000	5.0	156.2	9.6
SMCJ5.0A	SMCJ5.0CA(4)	6.40	7.07	10.0	1000	5.0	163.0	9.2
SMCJ6.0	SMCJ6.0C	6.67	8.15	10.0	1000	6.0	131.6	11.4
SMCJ6.0A	SMCJ6.0CA	6.67	7.37	10.0	1000	6.0	145.6	10.3
SMCJ6.5	SMCJ6.5C	7.22	8.82	10.0	500	6.5	121.9	12.3
SMCJ6.5A	SMCJ6.5CA	7.22	7.98	10.0	500	6.5	133.9	11.2
SMCJ7.0	SMCJ7.0C	7.78	9.51	10.0	200	7.0	112.7	13.3
SMCJ7.0A	SMCJ7.0CA	7.78	8.60	10.0	200	7.0	125.0	12.0
SMCJ7.5	SMCJ7.5C	8.33	10.20	1.0	100	7.5	104.9	14.3
SMCJ7.5A	SMCJ7.5CA	8.33	9.21	1.0	100	7.5	116.3	12.9
SMCJ8.0	SMCJ8.0C	8.89	10.90	1.0	50	8.0	100.0	15.0
SMCJ8.0A	SMCJ8.0CA	8.89	9.83	1.0	50	8.0	110.3	13.6
SMCJ8.5	SMCJ8.5C	9.44	11.50	1.0	20	8.5	94.3	15.9
SMCJ8.5A	SMCJ8.5CA	9.44	10.40	1.0	20	8.5	104.2	14.4
SMCJ9.0	SMCJ9.0C	10.00	12.20	1.0	10	9.0	88.7	16.9
SMCJ9.0A	SMCJ9.0CA	10.00	11.10	1.0	10	9.0	97.4	15.4
SMCJ10	SMCJ10C	11.10	13.60	1.0	5	10.0	79.8	18.8
SMCJ10A	SMCJ10CA	11.10	12.30	1.0	5	10.0	88.2	17.0
SMCJ11	SMCJ11C	12.20	14.90	1.0	5	11.0	74.6	20.1
SMCJ11A	SMCJ11CA	12.20	13.50	1.0	5.	11.0	82.4	18.2
SMCJ12	SMCJ12C	13.30	16.30	1.0	5	12.0	68.2	22.0
SMCJ12A	SMCJ12CA	13.30	14.70	1.0	5	12.0	75.4	19.9
SMCJ13	SMCJ13C	14.40	17.60	1.0	5	13.0	63.0	23.8
SMCJ13A	SMCJ13CA	14.40	15.90	1.0	5	13.0	69.8	21.5
SMCJ14	SMCJ14C	15.60	19.10	1.0	5	14.0	58.1	25.8
SMCJ14A	SMCJ14CA	15.60	17.20	1.0	5	14.0	64.7	23.2
SMCJ15	SMCJ15C	16.70	20.40	1.0	5	15.0	55.7	26.9
SMCJ15A	SMCJ15CA	16.70	18.50	1.0	5	15.0	61.5	24.4
SMCJ16	SMCJ16C	17.80	21.80	1.0	5	16.0	52.1	28.8
SMCJ16A	SMCJ16CA	17.80	19.70	1.0	5	16.0	57.7	26.0
SMCJ17	SMCJ17C	18.90	23.10	1.0	5	17.0	49.2	30.5
SMCJ17A	SMCJ17CA	18.90	20.90	1.0	5	17.0	54.3	27.6
SMCJ18	SMCJ18C	20.00	24.40	1.0	5	18.0	46.5	32.2
SMCJ18A	SMCJ18CA	20.00	22.10	1.0	5	18.0	51.4	29.2
SMCJ19	SMCJ19C	21.10	25.70	1.0	5	19.0	44.1	34.0
SMCJ19A	SMCJ19CA	21.10	23.30	1.0	5	19.0	48.7	30.8
SMCJ20	SMCJ20C	22.20	27.10	1.0	5	20.0	41.9	35.8
SMCJ20A	SMCJ20CA	22.20	24.50	1.0	5	20.0	46.3	32.4
SMCJ22	SMCJ22C	24.40	29.80	1.0	5	22.0	38.1	39.4
SMCJ22A	SMCJ22CA	24.40	26.90	1.0	5	22.0	42.3	35.5

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Electrical Characteristics (T_A=25℃ unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	V_{BR}@I_T Breakdown Voltage V_{BR}@I_T			I_R @V_{WM} Maximum Reverse Leakage I_R (3) (μ A)	V_{RWM} Working Peak Reverse Voltage V_{RWM} (V)	IPP Maximum Reverse Surge Current IPP(2) (A)	Maximum Clamping Voltage Vc @ I_{PP} (V)
		Min(V)	Max (V)	IT(1)(mA)				
SMCJ24	SMCJ24C	26.70	32.60	1.0	5	24.0	34.9	43.0
SMCJ24A	SMCJ24CA	26.70	29.50	1.0	5	24.0	38.6	38.9
SMCJ26	SMCJ26C	28.90	35.30	1.0	5	26.0	32.2	46.6
SMCJ26A	SMCJ26CA	28.90	31.90	1.0	5	26.0	35.6	42.1
SMCJ28	SMCJ28C	31.10	38.00	1.0	5	28.0	30.0	50.0
SMCJ28A	SMCJ28CA	31.10	34.40	1.0	5	28.0	33.0	45.4
SMCJ30	SMCJ30C	33.30	40.70	1.0	5	30.0	28.0	53.5
SMCJ30A	SMCJ30CA	33.30	36.80	1.0	5	30.0	31.0	48.4
SMCJ33	SMCJ33C	36.70	44.90	1.0	5	33.0	25.4	59.0
SMCJ33A	SMCJ33CA	36.70	40.60	1.0	5	33.0	28.1	53.3
SMCJ36	SMCJ36C	40.00	48.90	1.0	5	36.0	23.3	64.3
SMCJ36A	SMCJ36CA	40.00	44.20	1.0	5	36.0	25.8	58.1
SMCJ40	SMCJ40C	44.40	54.30	1.0	5	40.0	21.0	71.4
SMCJ40A	SMCJ40CA	44.40	49.10	1.0	5	40.0	23.3	64.5
SMCJ43	SMCJ43C	47.80	58.40	1.0	5	43.0	19.6	76.7
SMCJ43A	SMCJ43CA	47.80	52.80	1.0	5	43.0	21.6	69.4
SMCJ45	SMCJ45C	50.00	61.10	1.0	5	45.0	18.7	80.3
SMCJ45A	SMCJ45CA	50.00	55.30	1.0	5	45.0	20.6	72.7
SMCJ48	SMCJ48C	53.30	65.10	1.0	5	48.0	17.5	85.5
SMCJ48A	SMCJ48CA	53.30	58.90	1.0	5	48.0	19.4	77.4
SMCJ51	SMCJ51C	56.70	69.30	1.0	5	51.0	16.4	91.1
SMCJ51A	SMCJ51CA	56.70	62.70	1.0	5	51.0	18.2	82.4
SMCJ54	SMCJ54C	60.00	73.30	1.0	5	54.0	15.5	96.3
SMCJ54A	SMCJ54CA	60.00	66.30	1.0	5	54.0	17.2	87.1
SMCJ58	SMCJ58C	64.40	78.70	1.0	5	58.0	14.5	103.0
SMCJ58A	SMCJ58CA	64.40	71.20	1.0	5	58.0	16.0	93.6
SMCJ60	SMCJ60C	66.70	81.50	1.0	5	60.0	14.0	107.0
SMCJ60A	SMCJ60CA	66.70	73.70	1.0	5	60.0	15.5	96.8
SMCJ64	SMCJ64C	71.10	86.90	1.0	5	64.0	13.1	114.0
SMCJ64A	SMCJ64CA	71.10	78.60	1.0	5	64.0	14.5	103.0
SMCJ70	SMCJ70C	77.80	95.10	1.0	5	70.0	12.0	125.0
SMCJ70A	SMCJ70CA	77.80	86.00	1.0	5	70.0	13.3	113.0
SMCJ75	SMCJ75C	83.30	102.00	1.0	5	75.0	11.2	134.0
SMCJ75A	SMCJ75CA	83.30	92.10	1.0	5	75.0	12.4	121.0
SMCJ78	SMCJ78C	86.70	106.00	1.0	5	78.0	10.8	139.0
SMCJ78A	SMCJ78CA	86.70	95.80	1.0	5	78.0	11.9	126.0
SMCJ80	SMCJ80C	88.96	108.80	1.0	5	80.0	10.4	143.2
SMCJ80A	SMCJ80CA	88.80	97.60	1.0	5	80.0	11.6	129.6

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Electrical Characteristics (T_A=25℃ unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	V_{BR}@I_T Breakdown Voltage V_{BR}@I_T			I_R @V_{WM} Maximum Reverse Leakage I_R (3) (μ A)	V_{RWM} Working Peak Reverse Voltage V_{RWM} (V)	IPP Maximum Reverse Surge Current IPP(2) (A)	Maximum Clamping Voltage Vc @ I_{PP} (V)
		Min(V)	Max (V)	IT(1)(mA)				
SMCJ85	SMCJ85C	94.40	115.00	1.0	5	85.0	9.9	151.0
SMCJ85A	SMCJ85CA	94.40	104.00	1.0	5	85.0	10.9	137.0
SMCJ90	SMCJ90C	100.00	122.00	1.0	5	90.0	9.4	160.0
SMCJ90A	SMCJ90CA	100.00	111.00	1.0	5	90.0	10.3	146.0
SMCJ100	SMCJ100C	111.00	136.00	1.0	5	100.0	8.4	179.0
SMCJ100A	SMCJ100CA	111.00	123.00	1.0	5	100.0	9.3	162.0
SMCJ110	SMCJ110C	122.00	149.00	1.0	5	111.0	7.7	196.0
SMCJ110A	SMCJ110CA	122.00	135.00	1.0	5	110.0	8.5	177.0
SMCJ120	SMCJ120C	133.00	163.00	1.0	5	120.0	7.0	214.0
SMCJ120A	SMCJ120CA	133.00	147.00	1.0	5	120.0	7.8	193.0
SMCJ130	SMCJ130C	144.00	176.00	1.0	5	130.0	6.5	231.0
SMCJ130A	SMCJ130CA	144.00	159.00	1.0	5	130.0	7.2	209.0
SMCJ140	SMCJ140C	155.70	190.40	1.0	5	140.0	6.0	250.6
SMCJ140A	SMCJ140CA	155.00	171.00	1.0	5	140.0	6.6	226.8
SMCJ150	SMCJ150C	167.00	204.00	1.0	5	150.0	5.6	268.0
SMCJ150A	SMCJ150CA	167.00	185.00	1.0	5	150.0	6.2	243.0
SMCJ160	SMCJ160C	178.00	218.00	1.0	5	160.0	5.2	287.0
SMCJ160A	SMCJ160CA	178.00	197.00	1.0	5	160.0	5.8	259.0
SMCJ170	SMCJ170C	189.00	231.00	1.0	5	170.0	4.9	304.0
SMCJ170A	SMCJ170CA	189.00	209.00	1.0	5	170.0	5.4	275.0
SMCJ180	SMCJ180C	200.20	244.80	1.0	5	180.0	4.6	322.2
SMCJ180A	SMCJ180CA	200.00	220.00	1.0	5	180.0	5.1	291.6
SMCJ190	SMCJ190C	211.30	258.40	1.0	5	190.0	4.4	340.1
SMCJ190A	SMCJ190CA	211.00	232.00	1.0	5	190.0	4.8	307.8
SMCJ200A	SMCJ200CA	224.00	247.00	1.0	5	200.0	4.6	324.0
SMCJ220A	SMCJ220CA	246.00	272.00	1.0	5	220.0	4.2	356.0
SMCJ250A	SMCJ250CA	279.00	309.00	1.0	5	250.0	3.7	405.0
SMCJ300A	SMCJ300CA	335.00	371.00	1.0	5	300.0	3.1	486.0
SMCJ350A	SMCJ350CA	391.00	432.00	1.0	5	350.0	2.6	567.0
SMCJ400A	SMCJ400CA	447.00	494.00	1.0	5	400.0	2.3	648.0
SMCJ440A	SMCJ440CA	492.00	543.00	1.0	5	440.0	2.1	713.0

Notes:

(1) t_p≤50ms Pulse test: t_p≤50ms

(2) Surge current waveform per Fig. 3 and derated per Fig.2.

(3) For bi-directional types having VWM of 10 V and less, the I_R limit is doubled

(4) For the bi-directional SMCJ5.0CA, the maximum V_{BR} is 7.25 V

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Typical Characteristics

FIG1:Peak Pulse Power Rating Curve

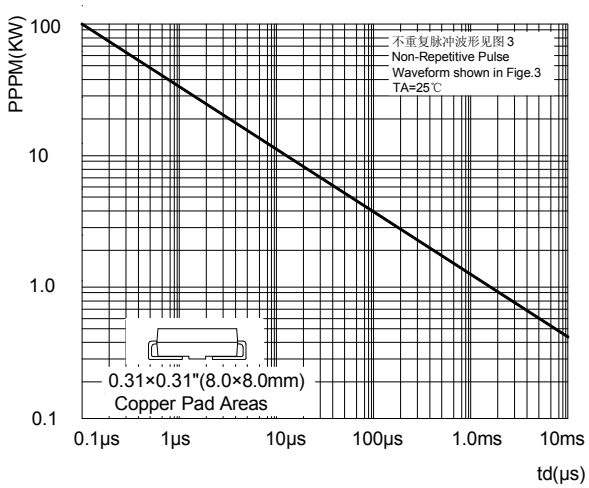


FIG2: Pulse Power or Current vs. Initial Junction Temperature

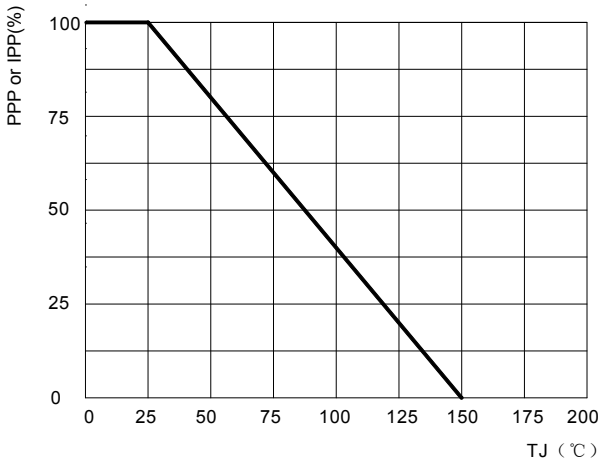


FIG3: Pulse Waveform

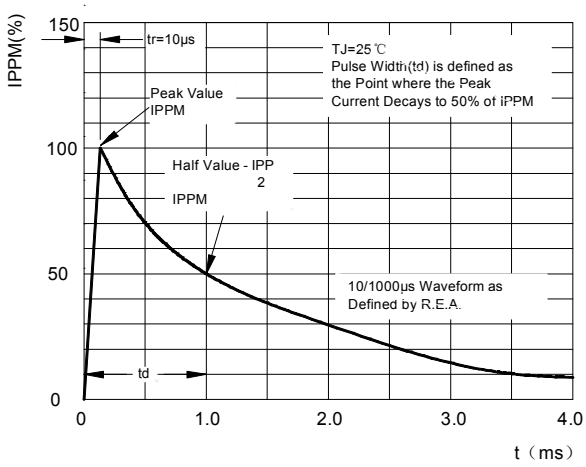


FIG4:Typical Transient Thermal Impedance

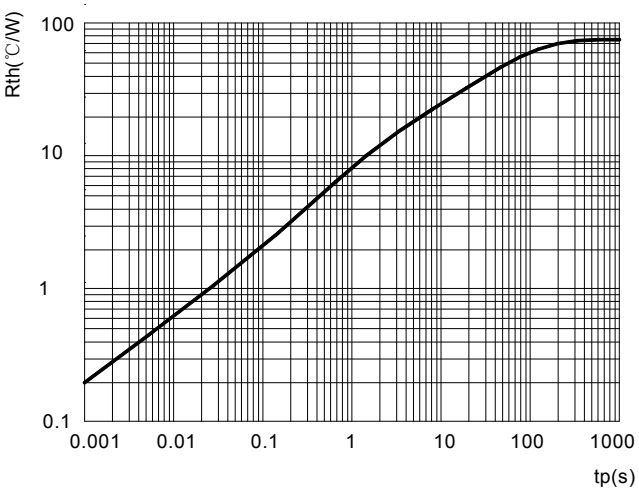


FIG5: Maximum Non-Repetitive Surge Current

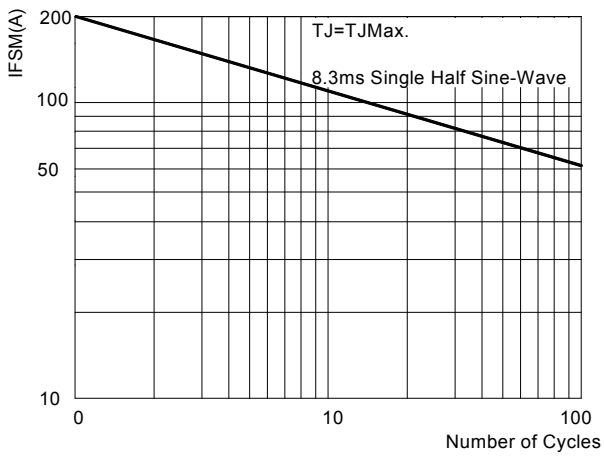
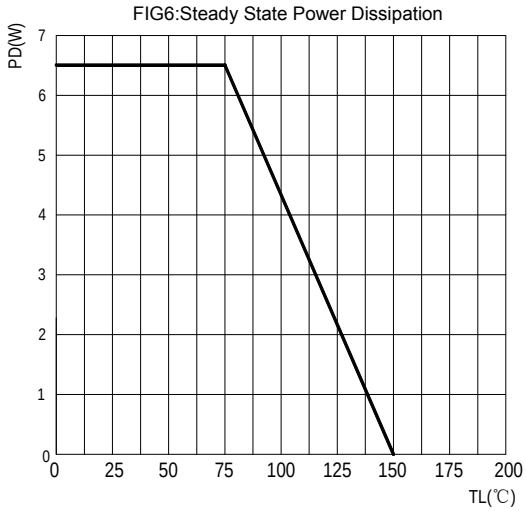
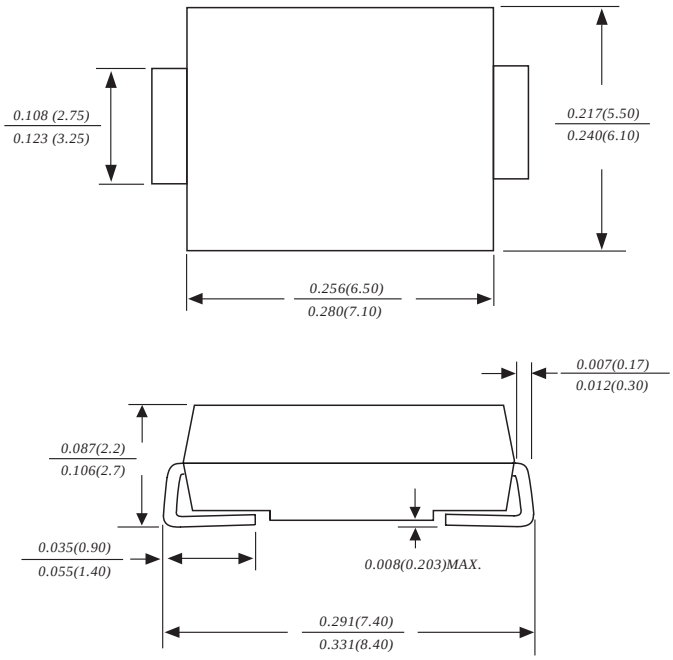


FIG6:Steady State Power Dissipation



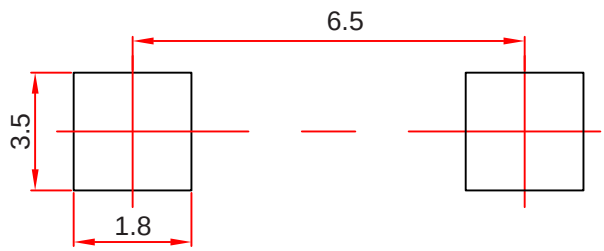
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SMC Package Outline Dimensions



Dimensions in inches and (millimeters)

SMC Suggested Pad Layout



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

NOTICE

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

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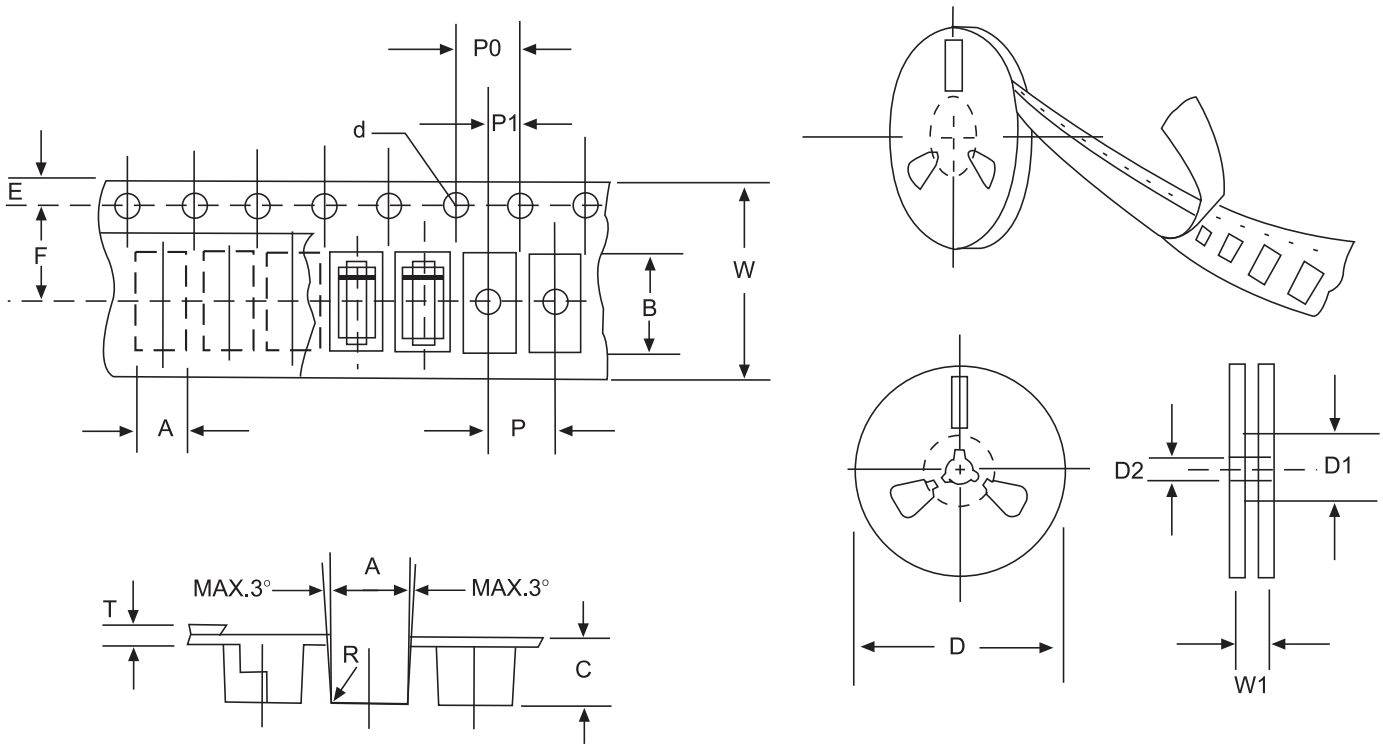


FIG:CONFIGURATION OF AXIAL TAPING

ITEM	SYMBOL	SMC 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	2.50±0.1(0.100±0.004)
Sprocket hole	d	1.5±0.1(0.059±0.004)
Reel outside diameter	D	330/281/178±2(13/11/7±0.079)
Reel inner diameter	D1	8.0±0.2(0.315±0.008)
Feed hole diameter	D2	13±0.5(0.512±0.020)
Stroket hole position	E	1.5±0.1(0.059±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)
Totall 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 packde in accordance with EIA standard RS-481-A and specification given above.

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