

1500W Transient Voltage Suppressor

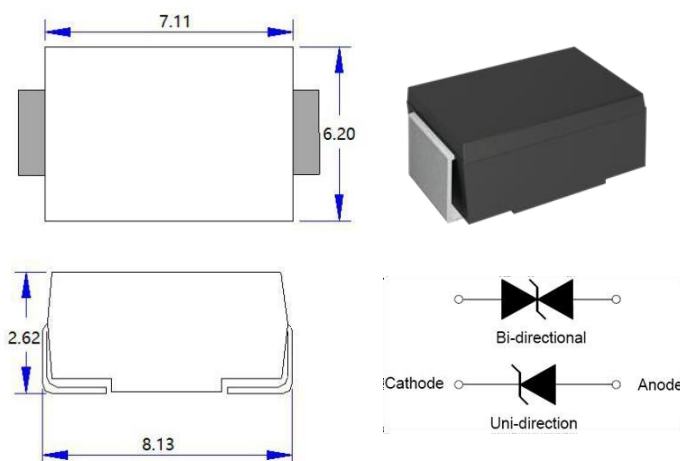
Description

TVS diodes can be used in a wide range of applications which like consumer electronic products, automotive industries, munitions, telecommunications, aerospace industries, and intelligent control systems.

Features

- Glass passivated or planar junction
- Excellent clamping capability
- Repetition rate (duty cycle): 0.01%
- Low profile package and low inductance
- 1500W Peak Pulse power capability at 10×1000μs waveform.
- Fast response time: typically less than 1.0ps from 0V to V_{BR} min.
- High temperature soldering: 260°C/10s at terminals.
- Plastic package has Underwriters Laboratory Flammability 94V-0.
- For surface mounted applications in order to optimize board space.

Dimensions & Symbol (Unit: mm Max)



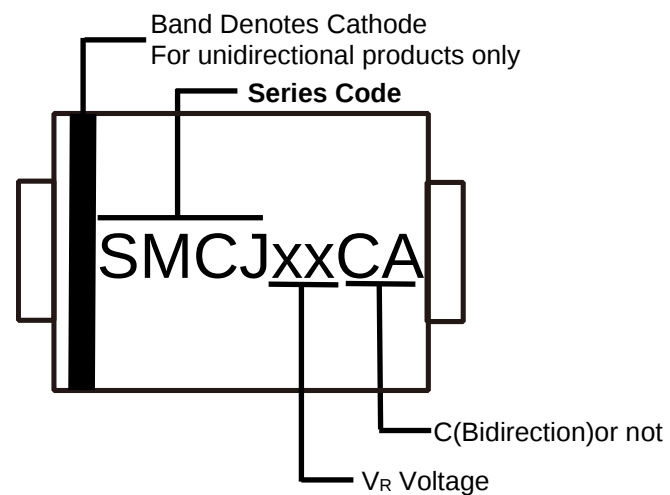
Mechanical Characteristics

- Package: SMC/DO-214AB
- Case Material: "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Device meets MSL 1, per J-STD-020
- Polarity: Color band denotes cathode except bi-directional models
- Standard Packaging: 12mm tape (EIA STD RS-481)
- Weight: 0.28g
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

- I/O Interface.
- AC/DC Power supply
- Low frequency signal transmission line (RS232, RS485, etc.)

Marking Information



Ordering Information

Out line	Reel (pcs)	Per carton (pcs)	Reel diameters (mm)
Taping	3K	60K	330

Electrical Characteristics (T_A=25℃)

Part Number		Marking		V _R	I _R @V _R	V _{BR} @I _T		I _T	V _C @I _{PP}	I _{PP} ^①
Uni-Polar	Bi-Polar	Uni	Bi	V	μA	min(V)	max(V)	mA	max(V)	A
SMCJ5.0A	SMCJ5.0CA	SMCJ5.0A	SMCJ5.0CA	5.0	800	6.40	7.00	10	9.2	163
SMCJ6.0A	SMCJ6.0CA	SMCJ6.0A	SMCJ6.0CA	6.0	800	6.67	7.37	10	10.3	145.7
SMCJ6.5A	SMCJ6.5CA	SMCJ6.5A	SMCJ6.5CA	6.5	500	7.22	7.98	10	11.2	134
SMCJ7.0A	SMCJ7.0CA	SMCJ7.0A	SMCJ7.0CA	7.0	200	7.78	8.60	10	12	125
SMCJ7.5A	SMCJ7.5CA	SMCJ7.5A	SMCJ7.5CA	7.5	100	8.33	9.21	1	12.9	116.3
SMCJ8.0A	SMCJ8.0CA	SMCJ8.0A	SMCJ8.0CA	8.0	50	8.89	9.83	1	13.6	110.3
SMCJ8.5A	SMCJ8.5CA	SMCJ8.5A	SMCJ8.5CA	8.5	20	9.44	10.4	1	14.4	104.2
SMCJ9.0A	SMCJ9.0CA	SMCJ9.0A	SMCJ9.0CA	9.0	5	10.0	11.1	1	15.4	97.4
SMCJ10A	SMCJ10CA	SMCJ10A	SMCJ10CA	10.0	1	11.1	12.3	1	17	88.3
SMCJ11A	SMCJ11CA	SMCJ11A	SMCJ11CA	11.0	1	12.2	13.5	1	18.2	82.5
SMCJ12A	SMCJ12CA	SMCJ12A	SMCJ12CA	12.0	1	13.3	14.7	1	19.9	75.4
SMCJ13A	SMCJ13CA	SMCJ13A	SMCJ13CA	13.0	1	14.4	15.9	1	21.5	69.8
SMCJ14A	SMCJ14CA	SMCJ14A	SMCJ14CA	14.0	1	15.6	17.2	1	23.2	64.7
SMCJ15A	SMCJ15CA	SMCJ15A	SMCJ15CA	15.0	1	16.7	18.5	1	24.4	61.5
SMCJ16A	SMCJ16CA	SMCJ16A	SMCJ16CA	16.0	1	17.8	19.7	1	26	57.7
SMCJ17A	SMCJ17CA	SMCJ17A	SMCJ17CA	17.0	1	18.9	20.9	1	27.6	54.4
SMCJ18A	SMCJ18CA	SMCJ18A	SMCJ18CA	18.0	1	20.0	22.1	1	29.2	51.4
SMCJ20A	SMCJ20CA	SMCJ20A	SMCJ20CA	20.0	1	22.2	24.5	1	32.4	46.3
SMCJ22A	SMCJ22CA	SMCJ22A	SMCJ22CA	22.0	1	24.4	26.9	1	35.5	42.3
SMCJ24A	SMCJ24CA	SMCJ24A	SMCJ24CA	24.0	1	26.7	29.5	1	38.9	38.6
SMCJ26A	SMCJ26CA	SMCJ26A	SMCJ26CA	26.0	1	28.9	31.9	1	42.1	35.7
SMCJ28A	SMCJ28CA	SMCJ28A	SMCJ28CA	28.0	1	31.1	34.4	1	45.4	33.1
SMCJ30A	SMCJ30CA	SMCJ30A	SMCJ30CA	30.0	1	33.3	36.8	1	48.4	31
SMCJ33A	SMCJ33CA	SMCJ33A	SMCJ33CA	33.0	1	36.7	40.6	1	53.3	28.2
SMCJ36A	SMCJ36CA	SMCJ36A	SMCJ36CA	36.0	1	40.0	44.2	1	58.1	25.9
SMCJ40A	SMCJ40CA	SMCJ40A	SMCJ40CA	40.0	1	44.4	49.1	1	64.5	23.3
SMCJ43A	SMCJ43CA	SMCJ43A	SMCJ43CA	43.0	1	47.8	52.8	1	69.4	21.7
SMCJ45A	SMCJ45CA	SMCJ45A	SMCJ45CA	45.0	1	50.0	55.3	1	72.7	20.6
SMCJ48A	SMCJ48CA	SMCJ48A	SMCJ48CA	48.0	1	53.3	58.9	1	77.4	19.4
SMCJ51A	SMCJ51CA	SMCJ51A	SMCJ51CA	51.0	1	56.7	62.7	1	82.4	18.2

Electrical Characteristics (T_A=25°C)

Part Number		Marking		V _R	I _R @V _R	V _{BR} @I _T		I _T	V _C @I _{PP}	I _{PP} ①
Uni-Polar	Bi-Polar	Uni	Bi	V	μA	min(V)	max(V)	mA	max(V)	A
SMCJ54A	SMCJ54CA	SMCJ54A	SMCJ54CA	54.0	1	60.0	66.3	1	87.1	17.3
SMCJ58A	SMCJ58CA	SMCJ58A	SMCJ58CA	58.0	1	64.4	71.2	1	93.6	16.1
SMCJ60A	SMCJ60CA	SMCJ60A	SMCJ60CA	60.0	1	66.7	73.7	1	96.8	15.5
SMCJ64A	SMCJ64CA	SMCJ64A	SMCJ64CA	64.0	1	71.1	78.6	1	103	14.6
SMCJ70A	SMCJ70CA	SMCJ70A	SMCJ70CA	70.0	1	77.8	86.0	1	113	13.3
SMCJ75A	SMCJ75CA	SMCJ75A	SMCJ75CA	75.0	1	83.3	92.1	1	121	12.4
SMCJ78A	SMCJ78CA	SMCJ78A	SMCJ78CA	78.0	1	86.70	95.8	1	126	11.9
SMCJ85A	SMCJ85CA	SMCJ85A	SMCJ85CA	85.0	1	94.4	104.0	1	137	11
SMCJ90A	SMCJ90CA	SMCJ90A	SMCJ90CA	90.0	1	100.0	111.0	1	146	10.3
SMCJ100A	SMCJ100CA	SMCJ100A	SMCJ100CA	100.0	1	111.0	123.0	1	162	9.3
SMCJ110A	SMCJ110CA	SMCJ110A	SMCJ110CA	110.0	1	122.0	135.0	1	177	8.5
SMCJ120A	SMCJ120CA	SMCJ120A	SMCJ120CA	120.0	1	133.0	147.0	1	193	7.8
SMCJ130A	SMCJ130CA	SMCJ130A	SMCJ130CA	130.0	1	144.0	159.0	1	209	7.2
SMCJ150A	SMCJ150CA	SMCJ150A	SMCJ150CA	150.0	1	167.0	185.0	1	243	6.2
SMCJ160A	SMCJ160CA	SMCJ160A	SMCJ160CA	160.0	1	178.0	197.0	1	259	5.8
SMCJ170A	SMCJ170CA	SMCJ170A	SMCJ170CA	170.0	1	189.0	209.0	1	275	5.5
SMCJ180A	SMCJ180CA	SMCJ180A	SMCJ180CA	180.0	1	201.0	222.0	1	292	5.1
SMCJ200A	SMCJ200CA	SMCJ200A	SMCJ200CA	200.0	1	224.0	247.0	1	324	4.6
SMCJ220A	SMCJ220CA	SMCJ220A	SMCJ220CA	220.0	1	246.0	272.0	1	356	4.2
SMCJ250A	SMCJ250CA	SMCJ250A	SMCJ250CA	250.0	1	279.0	309.0	1	405	3.7
SMCJ300A	SMCJ300CA	SMCJ300A	SMCJ300CA	300.0	1	335.0	371.0	1	486	3.1
SMCJ350A	SMCJ350CA	SMCJ350A	SMCJ350CA	350.0	1	391.0	432.0	1	567	2.6
SMCJ400A	SMCJ400CA	SMCJ400A	SMCJ400CA	400.0	1	447.0	494.0	1	648	2.3
SMCJ440A	SMCJ440CA	SMCJ440A	SMCJ440CA	440.0	1	492.0	543.0	1	713	2.1

① Surge waveform: 10/1000μs

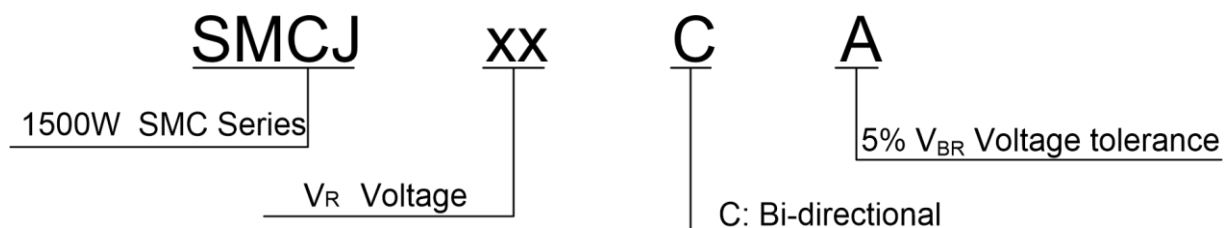
V_R : Stand-off Voltage -- Maximum voltage that can be applied

V_{BR}: Breakdown Voltage

V_C: Clamping Voltage -- Peak voltage measured across the suppressor at a specified I_{pp}

I_R: Reverse Leakage Current

Part Number Code



Absolute Maximum Ratings ($T_A=25^\circ\text{C}$, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage temperature range	T_{STG}	-55 to +150	$^\circ\text{C}$
Operating junction temperature range	T_j	-55 to +150	$^\circ\text{C}$
Steady state power dissipation at $T_L=75^\circ\text{C}$	$P_{M(AV)}$	8.0	W
Peak pulse power dissipation on 10/1000 μs waveform	P_{PP}	1500	W
Maximum Instantaneous Forward Voltage at 50A for Unidirectional	V_F	5.0	V

Ratings And V-I Characteristics Curves ($T_A=25^\circ\text{C}$, unless otherwise noted)

FIG.1:V- I curve characteristics (Uni-directional)

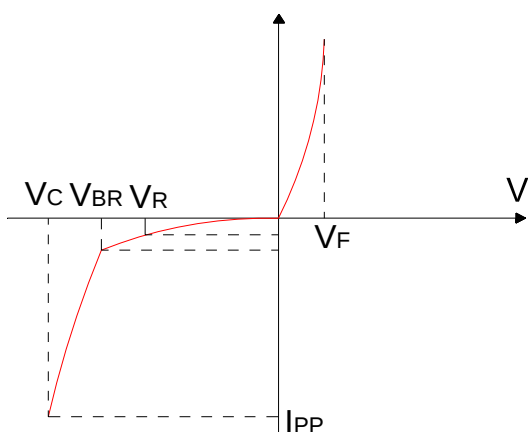
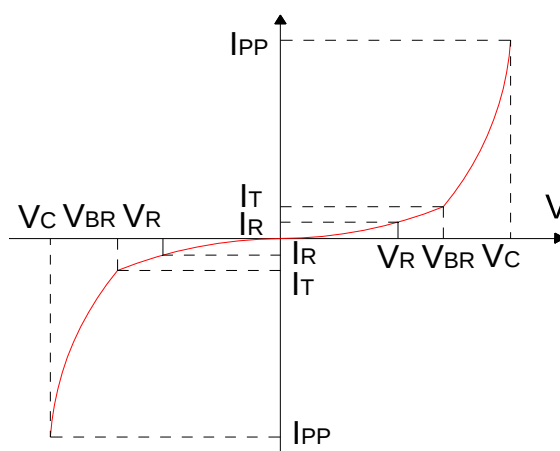


FIG.2:V- I curve characteristics (Bi-directional)



Typical Characteristics

FIG.3: Pulse waveform

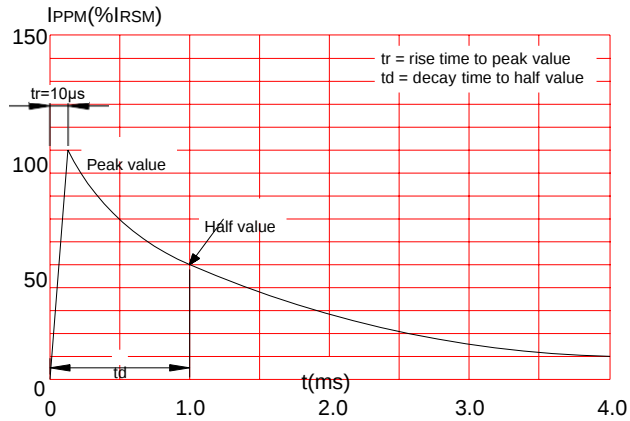
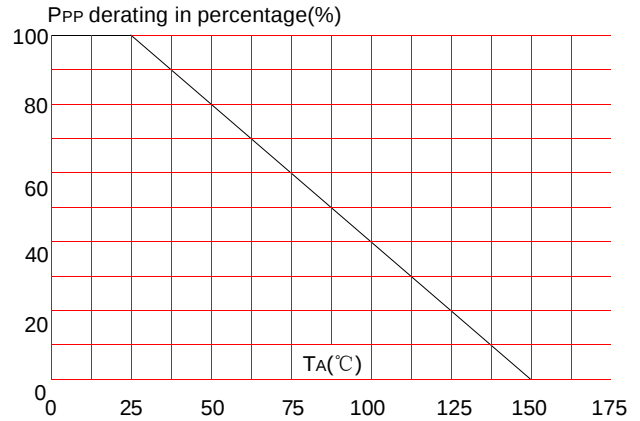
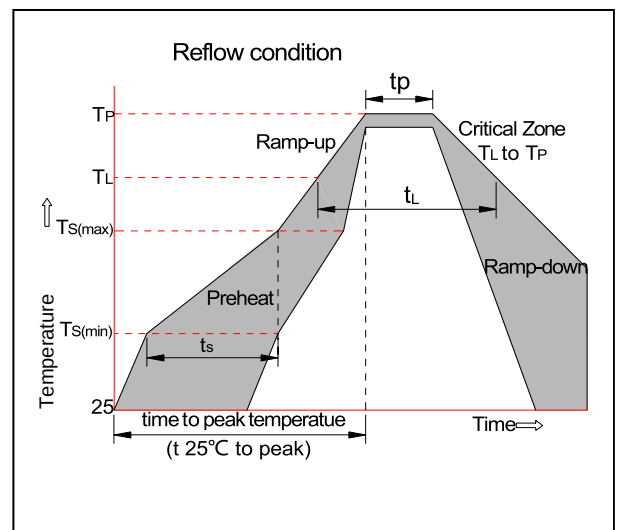


FIG.4: Pulse derating curve

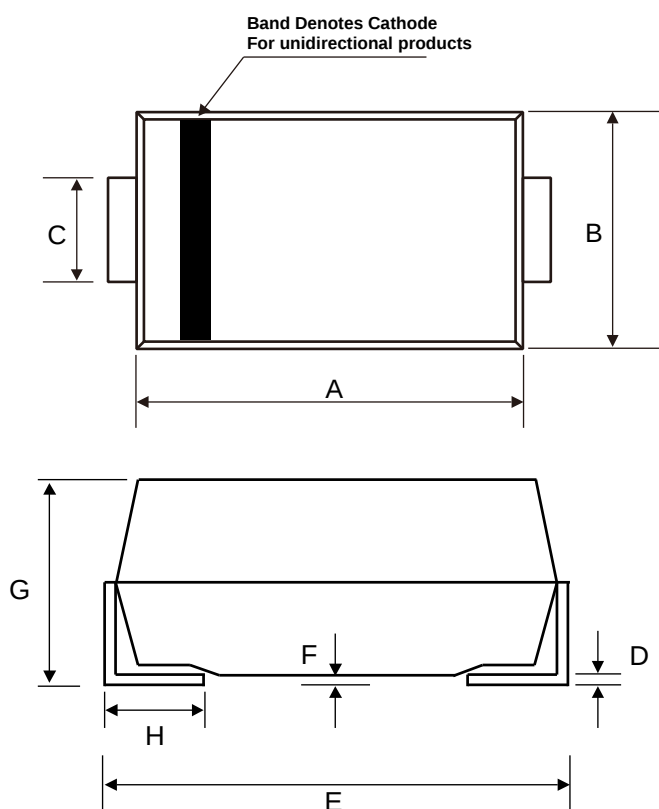


Soldering Parameters

Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min (Ts(min))	+150°C
	-Temperature Max(Ts(max))	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (TL) to peak)		3°C/sec. Max
Ts(max) to TL - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(TL)(Liquid us)	+217°C
	-Temperature(tL)	60-150 secs.
Peak Temp (Tp)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (tp)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (TP)		8 min. Max
Do not exceed		+260°C

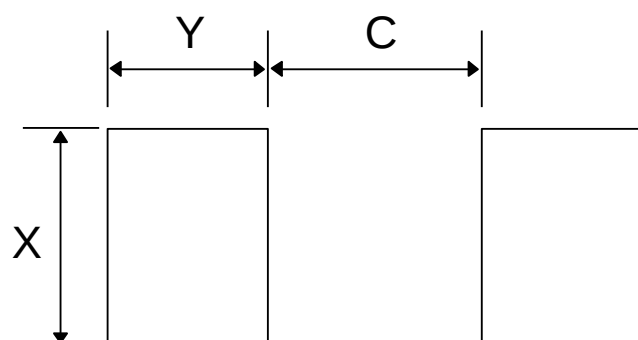


SMC Package Outline Drawing



Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	6.60	7.11	0.260	0.280
B	5.59	6.22	0.220	0.245
C	2.90	3.20	0.114	0.126
D	-	0.20	-	0.008
E	7.75	8.13	0.305	0.320
F	----	0.20	----	0.008
G	2.06	2.62	0.079	0.103
H	0.76	1.52	0.030	0.060

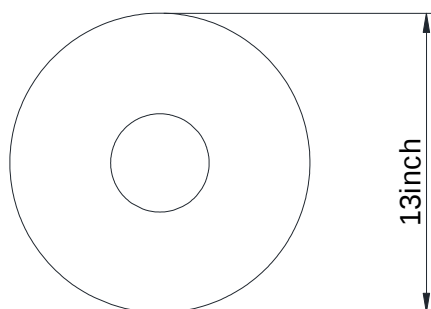
Suggested Land Pattern



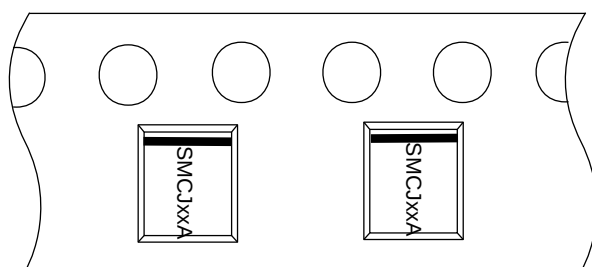
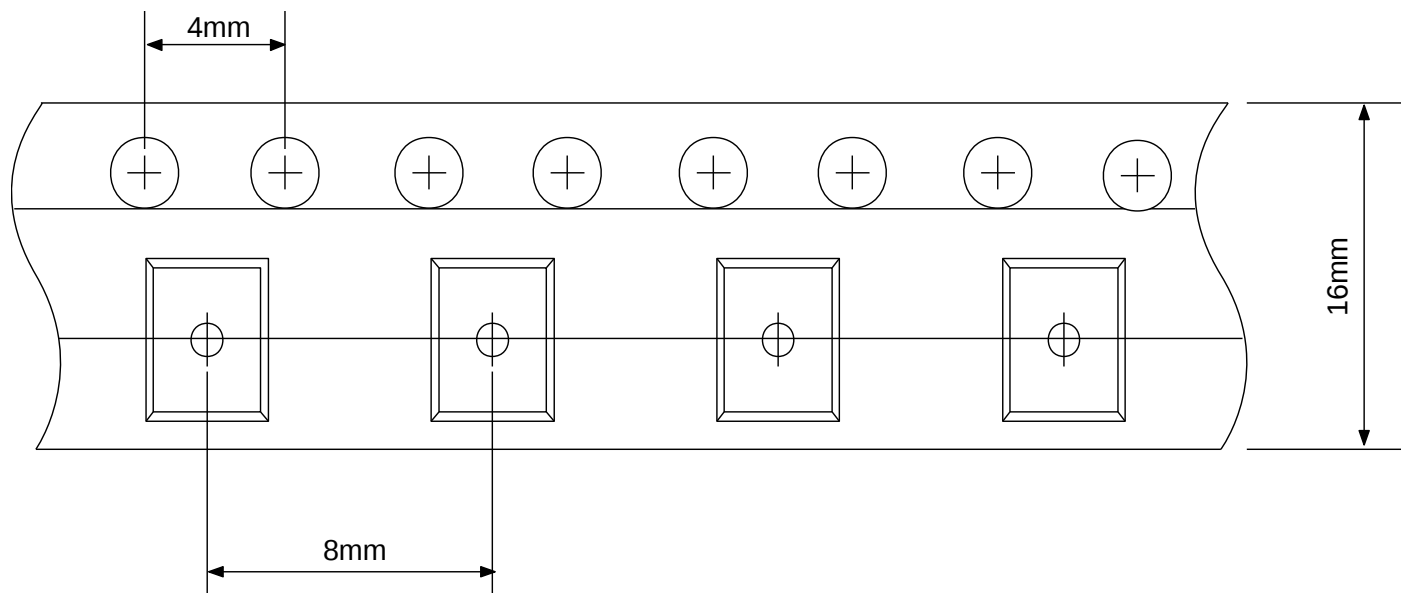
SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X	4.30	0.170
Y	4.10	0.161
C	3.80	0.150

TAPE AND REEL INFORMATION

Reel Dimensions

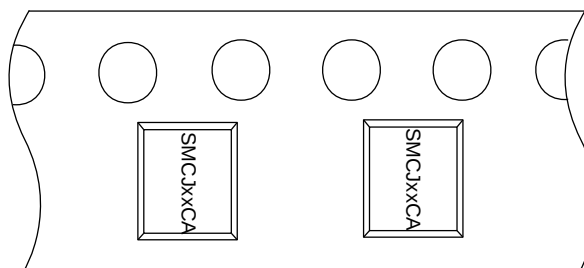


Tape Dimensions



Marking For Uni-Polar

or



Marking For Bi-Polar



User Direction of Feed

IMPORTANT NOTICE

The information given in this document is believed to be accurate and reliable but shall in no event be regarded as a guarantee of conditions or characteristics. PN-Silicon assumes no responsibility for any errors in this document, or for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of PN-Silicon.

The product listed in this document are designed to be used with ordinary electronic equipment or devices and are not authorized to used with equipment or devices which require an extremely high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, aerospace machinery, nuclear-reactor controllers, automotive and other safety device.)

The  logo is a registered trademark of PN-Silicon co., ltd which reserves the right to make changes to the product or this document at any time without notice. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. PN-Silicon makes no warranty, representation or guarantee, express or implied, regarding the suitability of its products for any particular purpose. All rights reserved.