

### Applications

- ◆ Computer system
- ◆ Domestic appliance
- ◆ Video input

### Mechanical Data

- ◆ Package : SMC/DO-214AB
- ◆ Case Material : Molded Plastic. UL Flammability Classification Rating 94V-0. RoHS compliant
- ◆ Moisture Sensitivity : Meet MSL 1
- ◆ Terminal : Solder plated, solderable per MIL-STD-750, Method 2026
- ◆ Polarity : Color band denotes cathode except bi-directional models
- ◆ Weight : 0.28g(approximate)

### Description

- ◆ Transient voltage suppression diodes, also known as TVS diodes, are protective electronic parts that protect electrical equipment from voltage spikes introduced by wires.

### Features

- ◆ For surface mounted applications
- ◆ Excellent clamping capability
- ◆ 1500 W peak pulse power capability with a 10/1000µs Waveform.
- ◆ VRWM 5.0 ~ 440V
- ◆ Low profile package and low inductance
- ◆ Typical IR less than 1uA above 9.0V
- ◆ Fast response time: typically less than 1.0ps from 0V to VBR min.
- ◆ AEC-Q101 Qualified

### Product and Packing Information

Part Number	QTY/Reel	Reel Size
SMCJxx(C)A-AT	3,000	13 inch

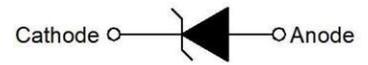
### DO-214AB(SMC)



DO-214AB



Bi-directional



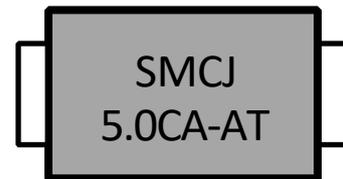
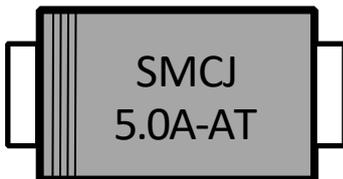
Un-directional

### Marking Information

EX :

SMCJ5.0CA-AT Marking code : SMCJ5.0CA-AT

SMCJ5.0CA-AT Marking code : SMCJ5.0CA-AT



**Electrical Characteristics (T=25°C)**

Part Number		Marking		V <sub>R</sub>	I <sub>R</sub> @V <sub>R</sub>	V <sub>BR</sub> @I <sub>T</sub>		I <sub>T</sub>	V <sub>C</sub> @I <sub>PP</sub>	I <sub>PP</sub> ①
Uni-Polar	Bi-Polar	Uni	Bi	V	μA	min(V)	max(V)	mA	max(V)	A
SMCJ5.0A-AT	SMCJ5.0CA-AT	SMCJ5.0A-AT	SMCJ5.0CA-AT	5.0	800	6.40	7.00	10	9.2	163.05
SMCJ6.0A-AT	SMCJ6.0CA-AT	SMCJ6.0A-AT	SMCJ6.0CA-AT	6.0	800	6.67	7.37	10	10.3	145.64
SMCJ6.5A-AT	SMCJ6.5CA-AT	SMCJ6.5A-AT	SMCJ6.5CA-AT	6.5	500	7.22	7.98	10	11.2	133.93
SMCJ7.0A-AT	SMCJ7.0CA-AT	SMCJ7.0A-AT	SMCJ7.0CA-AT	7.0	200	7.78	8.60	10	12.0	125.00
SMCJ7.5A-AT	SMCJ7.5CA-AT	SMCJ7.5A-AT	SMCJ7.5CA-AT	7.5	100	8.33	9.21	1	12.9	116.28
SMCJ8.0A-AT	SMCJ8.0CA-AT	SMCJ8.0A-AT	SMCJ8.0CA-AT	8.0	50	8.89	9.83	1	13.6	110.30
SMCJ8.5A-AT	SMCJ8.5CA-AT	SMCJ8.5A-AT	SMCJ8.5CA-AT	8.5	20	9.44	10.40	1	14.4	104.17
SMCJ9.0A-AT	SMCJ9.0CA-AT	SMCJ9.0A-AT	SMCJ9.0CA-AT	9.0	5	10.00	11.10	1	15.4	97.41
SMCJ10A-AT	SMCJ10CA-AT	SMCJ10A-AT	SMCJ10CA-AT	10.0	1	11.10	12.30	1	17.0	88.24
SMCJ11A-AT	SMCJ11CA-AT	SMCJ11A-AT	SMCJ11CA-AT	11.0	1	12.20	13.50	1	18.2	82.42
SMCJ12A-AT	SMCJ12CA-AT	SMCJ12A-AT	SMCJ12CA-AT	12.0	1	13.30	14.70	1	19.9	75.38
SMCJ13A-AT	SMCJ13CA-AT	SMCJ13A-AT	SMCJ13CA-AT	13.0	1	14.40	15.90	1	21.5	69.77
SMCJ14A-AT	SMCJ14CA-AT	SMCJ14A-AT	SMCJ14CA-AT	14.0	1	15.60	17.20	1	23.2	64.66
SMCJ15A-AT	SMCJ15CA-AT	SMCJ15A-AT	SMCJ15CA-AT	15.0	1	16.70	18.50	1	24.4	61.48
SMCJ16A-AT	SMCJ16CA-AT	SMCJ16A-AT	SMCJ16CA-AT	16.0	1	17.80	19.70	1	26.0	57.70
SMCJ17A-AT	SMCJ17CA-AT	SMCJ17A-AT	SMCJ17CA-AT	17.0	1	18.90	20.90	1	27.6	54.35
SMCJ18A-AT	SMCJ18CA-AT	SMCJ18A-AT	SMCJ18CA-AT	18.0	1	20.00	22.10	1	29.2	51.37
SMCJ20A-AT	SMCJ20CA-AT	SMCJ20A-AT	SMCJ20CA-AT	20.0	1	22.20	24.50	1	32.4	46.30
SMCJ22A-AT	SMCJ22CA-AT	SMCJ22A-AT	SMCJ22CA-AT	22.0	1	24.40	26.90	1	35.5	42.26
SMCJ24A-AT	SMCJ24CA-AT	SMCJ24A-AT	SMCJ24CA-AT	24.0	1	26.70	29.50	1	38.9	38.57
SMCJ26A-AT	SMCJ26CA-AT	SMCJ26A-AT	SMCJ26CA-AT	26.0	1	28.90	31.90	1	42.1	35.63
SMCJ28A-AT	SMCJ28CA-AT	SMCJ28A-AT	SMCJ28CA-AT	28.0	1	31.10	34.40	1	45.4	33.04
SMCJ30A-AT	SMCJ30CA-AT	SMCJ30A-AT	SMCJ30CA-AT	30.0	1	33.30	36.80	1	48.4	31.00
SMCJ33A-AT	SMCJ33CA-AT	SMCJ33A-AT	SMCJ33CA-AT	33.0	1	36.70	40.60	1	53.3	28.15
SMCJ36A-AT	SMCJ36CA-AT	SMCJ36A-AT	SMCJ36CA-AT	36.0	1	40.00	44.20	1	58.1	25.82
SMCJ40A-AT	SMCJ40CA-AT	SMCJ40A-AT	SMCJ40CA-AT	40.0	1	44.40	49.10	1	64.5	23.26
SMCJ43A-AT	SMCJ43CA-AT	SMCJ43A-AT	SMCJ43CA-AT	43.0	1	47.80	52.80	1	69.4	21.62
SMCJ45A-AT	SMCJ45CA-AT	SMCJ45A-AT	SMCJ45CA-AT	45.0	1	50.00	55.30	1	72.7	20.64
SMCJ48A-AT	SMCJ48CA-AT	SMCJ48A-AT	SMCJ48CA-AT	48.0	1	53.30	58.90	1	77.4	19.38
SMCJ51A-AT	SMCJ51CA-AT	SMCJ51A-AT	SMCJ51CA-AT	51.0	1	56.70	62.70	1	82.4	18.21
SMCJ54A-AT	SMCJ54CA-AT	SMCJ54A-AT	SMCJ54CA-AT	54.0	1	60.00	66.30	1	87.1	17.23
SMCJ58A-AT	SMCJ58CA-AT	SMCJ58A-AT	SMCJ58CA-AT	58.0	1	64.40	71.20	1	93.6	16.03
SMCJ60A-AT	SMCJ60CA-AT	SMCJ60A-AT	SMCJ60CA-AT	60.0	1	66.70	73.70	1	96.8	15.50
SMCJ64A-AT	SMCJ64CA-AT	SMCJ64A-AT	SMCJ64CA-AT	64.0	1	71.10	78.60	1	103.0	14.57

**Electrical Characteristics (T=25°C)**

Part Number		Marking		V <sub>R</sub>	I <sub>R</sub> @V <sub>R</sub>	V <sub>BR</sub> @I <sub>T</sub>		I <sub>T</sub>	V <sub>C</sub> @I <sub>PP</sub>	I <sub>PP</sub> ①
Uni-Polar	Bi-Polar	Uni	Bi	V	μA	min(V)	max(V)	mA	max(V)	A
SMCJ70A-AT	SMCJ70CA-AT	SMCJ70A-AT	SMCJ70CA-AT	70.0	1	77.80	86.00	1	113.0	13.28
SMCJ75A-AT	SMCJ75CA-AT	SMCJ75A-AT	SMCJ75CA-AT	75.0	1	83.30	92.10	1	121.0	12.40
SMCJ78A-AT	SMCJ78CA-AT	SMCJ78A-AT	SMCJ78CA-AT	78.0	1	86.70	95.80	1	126.0	11.91
SMCJ85A-AT	SMCJ85CA-AT	SMCJ85A-AT	SMCJ85CA-AT	85.0	1	94.40	104.0	1	137.0	10.95
SMCJ90A-AT	SMCJ90CA-AT	SMCJ90A-AT	SMCJ90CA-AT	90.0	1	100.0	111.0	1	146.0	10.28
SMCJ100A-AT	SMCJ100CA-AT	SMCJ100A-AT	SMCJ100CA-AT	100.0	1	111.0	123.0	1	162.0	9.26
SMCJ110A-AT	SMCJ110CA-AT	SMCJ110A-AT	SMCJ110CA-AT	110.0	1	122.0	135.0	1	177.0	8.48
SMCJ120A-AT	SMCJ120CA-AT	SMCJ120A-AT	SMCJ120CA-AT	120.0	1	133.0	147.0	1	193.0	7.78
SMCJ130A-AT	SMCJ130CA-AT	SMCJ130A-AT	SMCJ130CA-AT	130.0	1	144.0	159.0	1	209.0	7.18
SMCJ150A-AT	SMCJ150CA-AT	SMCJ150A-AT	SMCJ150CA-AT	150.0	1	167.0	185.0	1	243.0	6.18
SMCJ160A-AT	SMCJ160CA-AT	SMCJ160A-AT	SMCJ160CA-AT	160.0	1	178.0	197.0	1	259.0	5.80
SMCJ170A-AT	SMCJ170CA-AT	SMCJ170A-AT	SMCJ170CA-AT	170.0	1	189.0	209.0	1	275.0	5.46
SMCJ180A-AT	SMCJ180CA-AT	SMCJ180A-AT	SMCJ180CA-AT	180.0	1	201.0	222.0	1	292.0	5.14
SMCJ190A-AT	SMCJ190CA-AT	SMCJ190A-AT	SMCJ190CA-AT	190.0	1	209.0	233.0	1	308.0	4.88
SMCJ200A-AT	SMCJ200CA-AT	SMCJ200A-AT	SMCJ200CA-AT	200.0	1	224.0	247.0	1	324.0	4.63
SMCJ210A-AT	SMCJ210CA-AT	SMCJ210A-AT	SMCJ210CA-AT	210.0	1	237.0	263.0	1	340.0	4.42
SMCJ220A-AT	SMCJ220CA-AT	SMCJ220A-AT	SMCJ220CA-AT	220.0	1	246.0	272.0	1	356.0	4.22
SMCJ250A-AT	SMCJ250CA-AT	SMCJ250A-AT	SMCJ250CA-AT	250.0	1	279.0	309.0	1	405.0	3.71
SMCJ300A-AT	SMCJ300CA-AT	SMCJ300A-AT	SMCJ300CA-AT	300.0	1	335.0	371.0	1	486.0	3.09
SMCJ350A-AT	SMCJ350CA-AT	SMCJ350A-AT	SMCJ350CA-AT	350.0	1	391.0	432.0	1	567.0	2.65
SMCJ400A-AT	SMCJ400CA-AT	SMCJ400A-AT	SMCJ400CA-AT	400.0	1	447.0	494.0	1	648.0	2.32
SMCJ440A-AT	SMCJ440CA-AT	SMCJ440A-AT	SMCJ440CA-AT	440.0	1	492.0	543.0	1	713.0	2.11

**Note:** ①. Surge waveform: 10/1000μs

V<sub>R</sub>: Stand-off voltage -- Maximum voltage that can be applied

V<sub>BR</sub>: Breakdown voltage

V<sub>C</sub>: Clamping voltage -- Peak voltage measured across the suppressor at a specified I<sub>PP</sub>

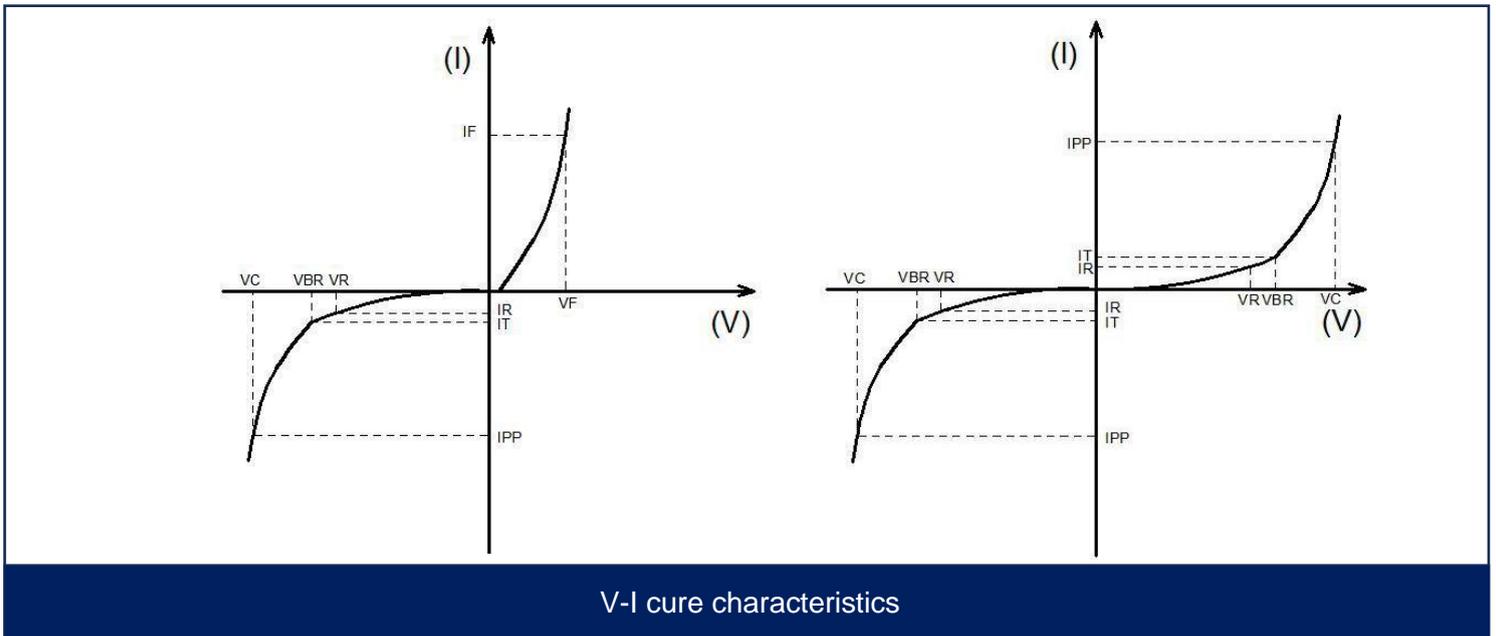
I<sub>R</sub>: Reverse leakage current

I<sub>T</sub>: Test current

Maximum Ratings (T=25°C, RH=45% ~ 75%, unless otherwise noted)

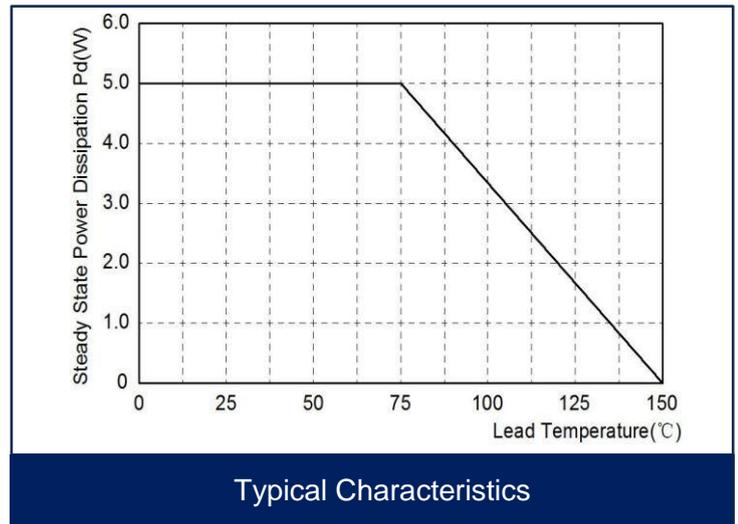
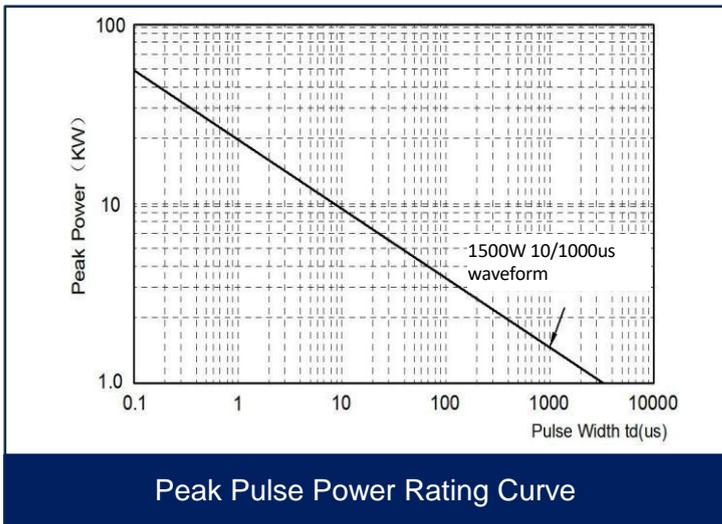
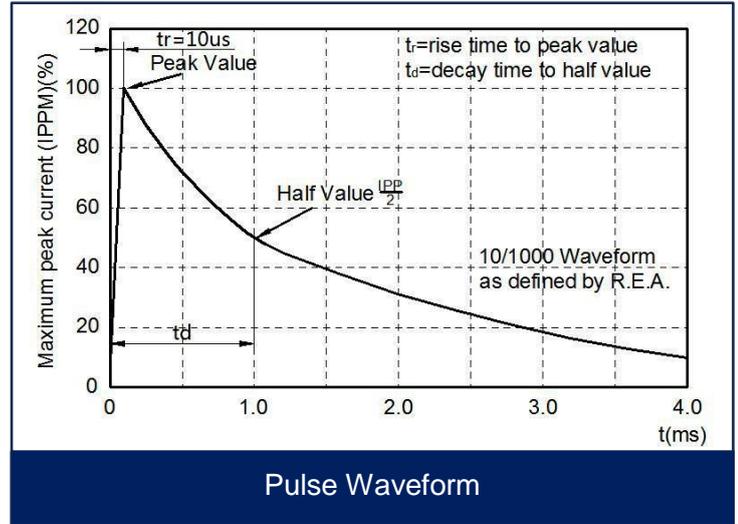
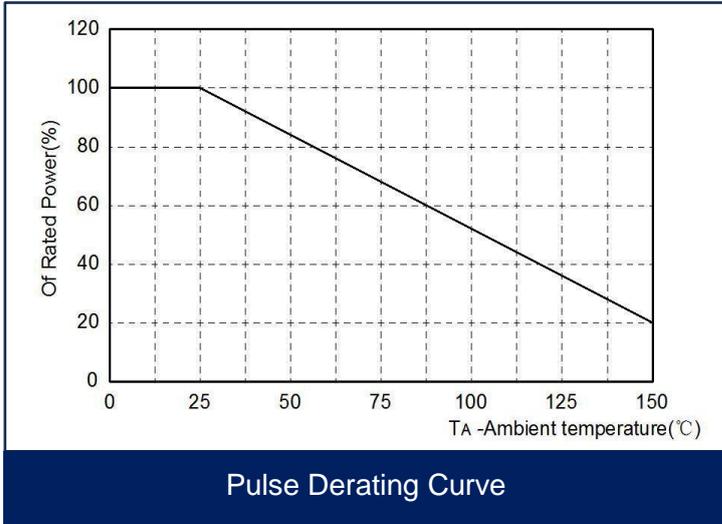
Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 10/1000µs waveform	P <sub>PP</sub>	1500	W
Steady state power dissipation at T <sub>L</sub> =75°C	P <sub>M(AV)</sub>	5.0	W
Operating junction temperature range	T <sub>j</sub>	-55 to +175	°C
Storage temperature range	T <sub>stg</sub>	-55 to +175	°C

Ratings And V-I Characteristics Curves (T=25°C, unless otherwise noted)



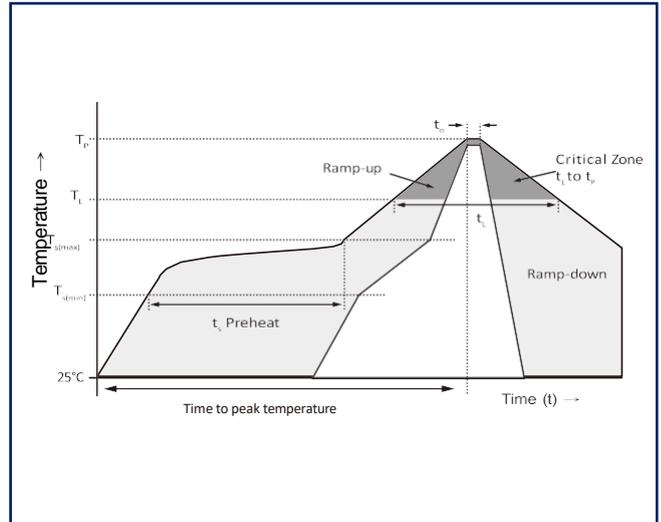
Symbol	Parameter
I <sub>F</sub>	Mean Forward Current
V <sub>F</sub>	Maximum Forward Voltage @ I <sub>F</sub>
V <sub>R</sub>	Peak Reverse Working Voltage
I <sub>R</sub>	Reverse Leakage Current @ V <sub>R</sub>
V <sub>BR</sub>	Breakdown Voltage @ I <sub>T</sub>
I <sub>T</sub>	Test Current
I <sub>PP</sub>	Maximum Reverse Peak Pulse Current
V <sub>C</sub>	Clamping Voltage @ I <sub>PP</sub>

Typical Characteristics

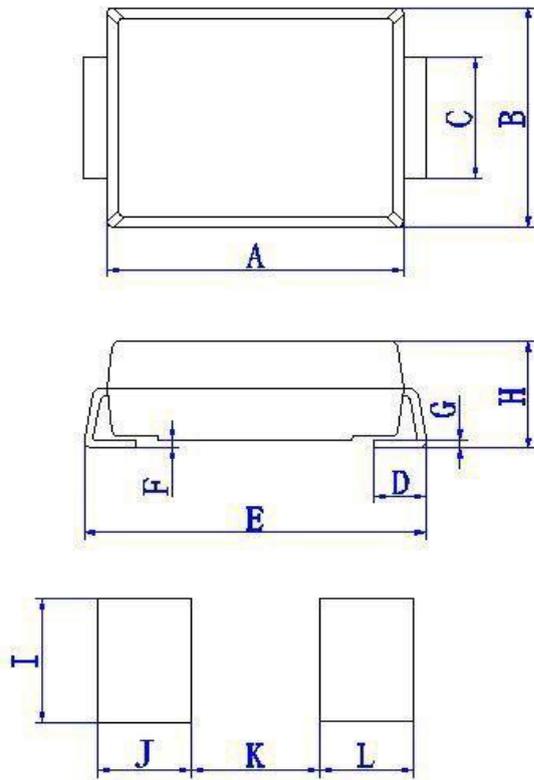


Soldering Parameters

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ( $T_{s(min)}$ )	150°C
	Temperature Max ( $T_{s(max)}$ )	200°C
	Time (min to max) ( $t_p$ )	60 – 180 secs
Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak)		3°C/second max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/second max
Reflow	Temperature ( $T_L$ ) (Liquidus)	217°C
	Time (min to max) ( $t_r$ )	60 – 150 seconds
Peak Temperature ( $T_p$ )		260°C (+0/-5)
Time within 5°C of actual peak Temperature ( $t_p$ )		30 seconds Max
Ramp-down Rate		6°C/second Max
Time 25°C to peak Temperature ( $T_p$ )		8 minutes Max.
Do not exceed		260°C

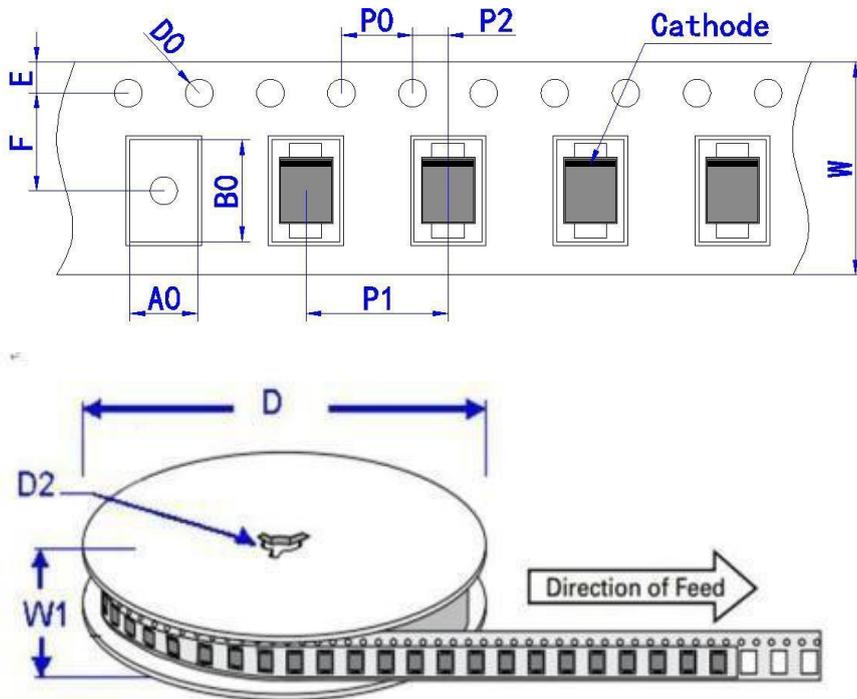


Package mechanical data & Suggested Land Pattern



Ref. (mm)	Millimeters	
	Min.	Max.
A	6.60	7.11
B	5.59	6.20
C	2.75	3.20
D	0.76	1.52
E	7.71	8.13
F	0.051	0.203
G	0.15	0.25
H	2.06	2.75
I	3.30	--
J	1.30	--
K	--	5.30
L	1.30	--

Tape And Reel Specification - SMC



Ref.	Millimeters
A0	6.20±0.20
B0	8.31±0.20
C	330.00
D0	1.55±0.10
E	1.75±0.20
E1	13.50±1.00
F	7.50±0.10
P0	8.00±0.20
P1	4.00±0.20
P2	2.00±0.20
W	16.00±0.30
W1	20.00±4.00
D	333.00±2.00
D2	13.50±0.30