

Description

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

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)

Product and Packing Information

Part Number	QTY/Reel	Reel Size
1.5SMCxx(C)A-AT	3,000	13 inch

Applications

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

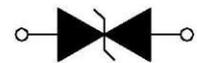
Features

- ◆ For surface mounted applications
- ◆ Excellent clamping capability
- ◆ 1500 W peak pulse power capability with a 10/1000 μ s Waveform.
- ◆ VRWM 6.8 ~ 550V
- ◆ Low profile package and low inductance
- ◆ Typical IR less than 1uA above 12V
- ◆ Fast response time: typically less than 1.0ps from 0V to VBR min.
- ◆ AEC-Q101 Qualified

DO-214AB(SMC)



DO-214AB



Bi-directional



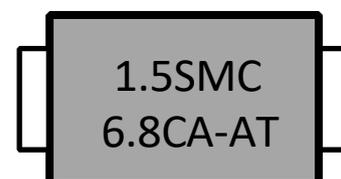
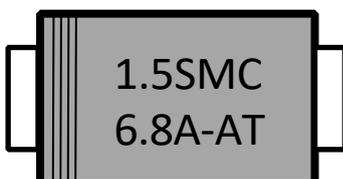
Un-directional

Marking Information

EX :

1.5SMC6.8A-AT Marking code : 1.5SMC6.8A-AT

1.5SMC6.8CA-AT Marking code : 1.5SMC6.8CA-AT



Electrical Characteristics (T=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
1.5SMC6.8A-AT	1.5SMC6.8CA-AT	1.5SMC6.8A-AT	1.5SMC6.8CA-AT	5.8	1000	6.45	7.14	10	10.5	142.9
1.5SMC7.5A-AT	1.5SMC7.5CA-AT	1.5SMC7.5A-AT	1.5SMC7.5CA-AT	6.4	500	7.13	7.88	10	11.3	132.8
1.5SMC8.2A-AT	1.5SMC8.2CA-AT	1.5SMC8.2A-AT	1.5SMC8.2CA-AT	7.02	200	7.79	8.61	10	12.1	124.0
1.5SMC9.1A-AT	1.5SMC9.1CA-AT	1.5SMC9.1A-AT	1.5SMC9.1CA-AT	7.78	50	8.65	9.50	1	13.4	112.0
1.5SMC10A-AT	1.5SMC10CA-AT	1.5SMC10A-AT	1.5SMC10CA-AT	8.55	10	9.50	10.5	1	14.5	103.5
1.5SMC11A-AT	1.5SMC11CA-AT	1.5SMC11A-AT	1.5SMC11CA-AT	9.4	5	10.5	11.6	1	15.6	96.16
1.5SMC12A-AT	1.5SMC12CA-AT	1.5SMC12A-AT	1.5SMC12CA-AT	10.2	5	11.4	12.6	1	16.7	89.83
1.5SMC13A-AT	1.5SMC13CA-AT	1.5SMC13A-AT	1.5SMC13CA-AT	11.1	1	12.4	13.7	1	18.2	82.42
1.5SMC15A-AT	1.5SMC15CA-AT	1.5SMC15A-AT	1.5SMC15CA-AT	12.8	1	14.3	15.8	1	21.2	70.76
1.5SMC16A-AT	1.5SMC16CA-AT	1.5SMC16A-AT	1.5SMC16CA-AT	13.6	1	15.2	16.8	1	22.5	66.67
1.5SMC18A-AT	1.5SMC18CA-AT	1.5SMC18A-AT	1.5SMC18CA-AT	15.3	1	17.1	18.9	1	25.2	59.53
1.5SMC20A-AT	1.5SMC20CA-AT	1.5SMC20A-AT	1.5SMC20CA-AT	17.1	1	19	21	1	27.7	54.16
1.5SMC22A-AT	1.5SMC22CA-AT	1.5SMC22A-AT	1.5SMC22CA-AT	18.8	1	20.9	23.1	1	30.6	49.02
1.5SMC24A-AT	1.5SMC24CA-AT	1.5SMC24A-AT	1.5SMC24CA-AT	20.5	1	22.8	25.2	1	33.2	45.19
1.5SMC27A-AT	1.5SMC27CA-AT	1.5SMC27A-AT	1.5SMC27CA-AT	23.1	1	25.7	28.4	1	37.5	40.00
1.5SMC30A-AT	1.5SMC30CA-AT	1.5SMC30A-AT	1.5SMC30CA-AT	25.6	1	28.5	31.5	1	41.4	36.24
1.5SMC33A-AT	1.5SMC33CA-AT	1.5SMC33A-AT	1.5SMC33CA-AT	28.2	1	31.4	34.7	1	45.7	32.83
1.5SMC36A-AT	1.5SMC36CA-AT	1.5SMC36A-AT	1.5SMC36CA-AT	30.8	1	34.2	37.8	1	49.9	30.07
1.5SMC39A-AT	1.5SMC39CA-AT	1.5SMC39A-AT	1.5SMC39CA-AT	33.3	1	37.1	41	1	53.9	27.83
1.5SMC43A-AT	1.5SMC43CA-AT	1.5SMC43A-AT	1.5SMC43CA-AT	36.8	1	40.9	45.2	1	59.3	25.30
1.5SMC47A-AT	1.5SMC47CA-AT	1.5SMC47A-AT	1.5SMC47CA-AT	40.2	1	44.7	49.4	1	64.8	23.15
1.5SMC51A-AT	1.5SMC51CA-AT	1.5SMC51A-AT	1.5SMC51CA-AT	43.6	1	48.5	53.6	1	70.1	21.40
1.5SMC56A-AT	1.5SMC56CA-AT	1.5SMC56A-AT	1.5SMC56CA-AT	47.8	1	53.2	58.8	1	77	19.49
1.5SMC62A-AT	1.5SMC62CA-AT	1.5SMC62A-AT	1.5SMC62CA-AT	53	1	58.9	65.1	1	85	17.65
1.5SMC68A-AT	1.5SMC68CA-AT	1.5SMC68A-AT	1.5SMC68CA-AT	58.1	1	64.6	71.4	1	92	16.31
1.5SMC75A-AT	1.5SMC75CA-AT	1.5SMC75A-AT	1.5SMC75CA-AT	64.1	1	71.3	78.8	1	103	14.57
1.5SMC82A-AT	1.5SMC82CA-AT	1.5SMC82A-AT	1.5SMC82CA-AT	70.1	1	77.9	86.1	1	113	13.28
1.5SMC91A-AT	1.5SMC91CA-AT	1.5SMC91A-AT	1.5SMC91CA-AT	77.8	1	86.5	95.5	1	125	12.00
1.5SMC100A-AT	1.5SMC100CA-AT	1.5SMC100A-AT	1.5SMC100CA-AT	84	1	95	105	1	137	10.95
1.5SMC110A-AT	1.5SMC110CA-AT	1.5SMC110A-AT	1.5SMC110CA-AT	94	1	105	116	1	152	9.87
1.5SMC120A-AT	1.5SMC120CA-AT	1.5SMC120A-AT	1.5SMC120CA-AT	102	1	114	126	1	165	9.10
1.5SMC130A-AT	1.5SMC130CA-AT	1.5SMC130A-AT	1.5SMC130CA-AT	111	1	124	137	1	179	8.38
1.5SMC150A-AT	1.5SMC150CA-AT	1.5SMC150A-AT	1.5SMC150CA-AT	128	1	143	158	1	207	7.25
1.5SMC170A-AT	1.5SMC170CA-AT	1.5SMC170A-AT	1.5SMC170CA-AT	145	1	162	179	1	234	6.42

Electrical Characteristics (T=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
1.5SMC180A-AT	1.5SMC180CA-AT	1.5SMC180A-AT	1.5SMC180CA-AT	154	1	171	189	1	246	6.10
1.5SMC200A-AT	1.5SMC200CA-AT	1.5SMC200A-AT	1.5SMC200CA-AT	171	1	190	210	1	274	5.48
1.5SMC220A-AT	1.5SMC220CA-AT	1.5SMC220A-AT	1.5SMC220CA-AT	185	1	209	231	1	328	4.58
1.5SMC250A-AT	1.5SMC250CA-AT	1.5SMC250A-AT	1.5SMC250CA-AT	214	1	237	263	1	344	4.37
1.5SMC300A-AT	1.5SMC300CA-AT	1.5SMC300A-AT	1.5SMC300CA-AT	256	1	285	315	1	414	3.63
1.5SMC350A-AT	1.5SMC350CA-AT	1.5SMC350A-AT	1.5SMC350CA-AT	300	1	332	368	1	482	3.12
1.5SMC400A-AT	1.5SMC400CA-AT	1.5SMC400A-AT	1.5SMC400CA-AT	342	1	380	420	1	548	2.74
1.5SMC440A-AT	1.5SMC440CA-AT	1.5SMC440A-AT	1.5SMC440CA-AT	376	1	418	462	1	602	2.50
1.5SMC480A-AT	1.5SMC480CA-AT	1.5SMC480A-AT	1.5SMC480CA-AT	408	1	456	504	1	658	2.28
1.5SMC510A-AT	1.5SMC510CA-AT	1.5SMC510A-AT	1.5SMC510CA-AT	434	1	485	535	1	698	2.15
1.5SMC520A-AT	1.5SMC520CA-AT	1.5SMC520A-AT	1.5SMC520CA-AT	444	1	494	546	1	711	2.11
1.5SMC530A-AT	1.5SMC530CA-AT	1.5SMC530A-AT	1.5SMC530CA-AT	450	1	504	557	1	725	2.07
1.5SMC540A-AT	1.5SMC540CA-AT	1.5SMC540A-AT	1.5SMC540CA-AT	459	1	513	567	1	740	2.03
1.5SMC550A-AT	1.5SMC550CA-AT	1.5SMC550A-AT	1.5SMC550CA-AT	467	1	523	578	1	760	1.98

Note: 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}

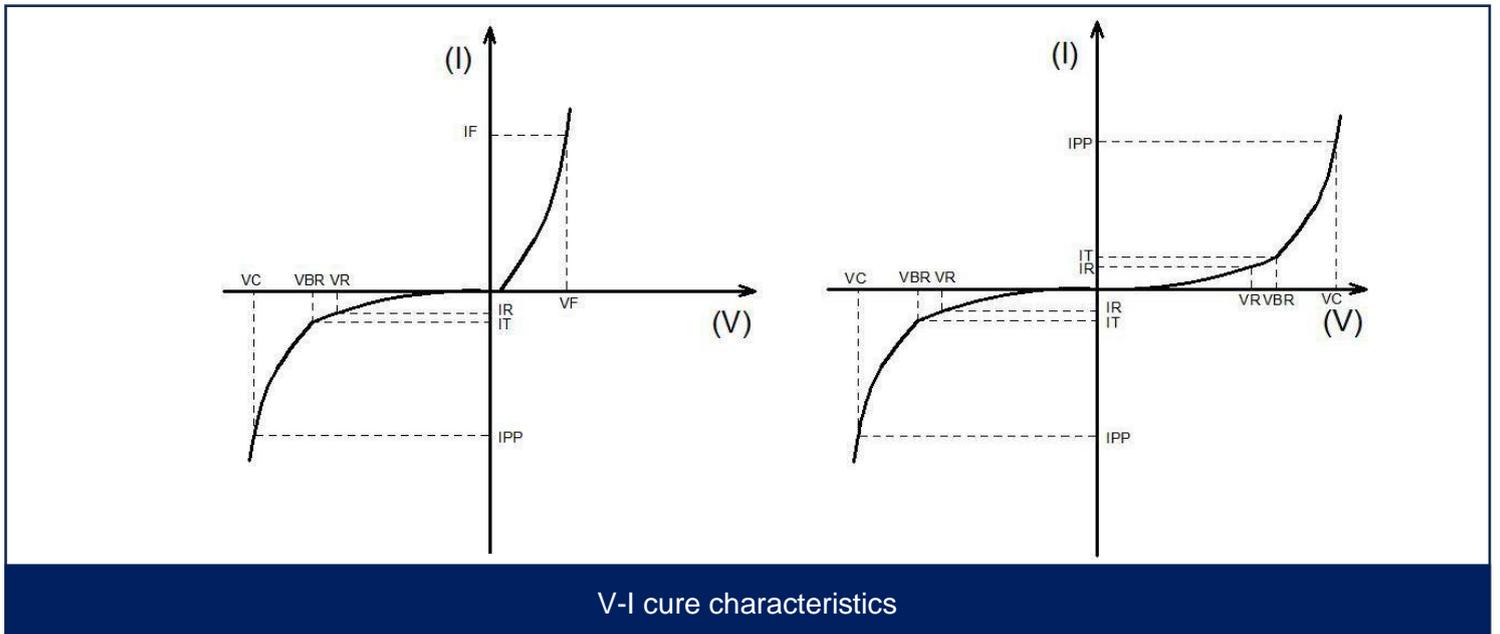
I_R: Reverse leakage current

I_T: Test current

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

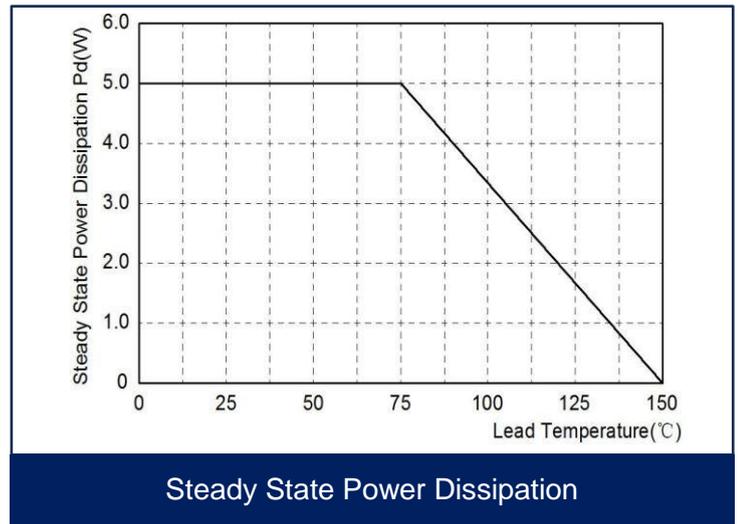
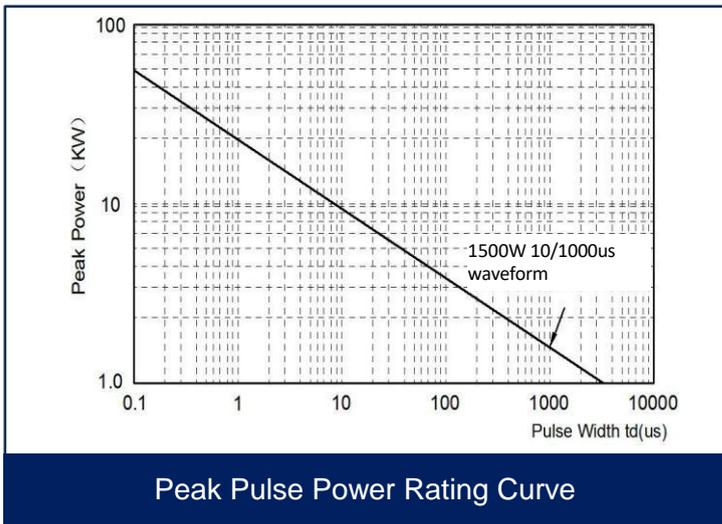
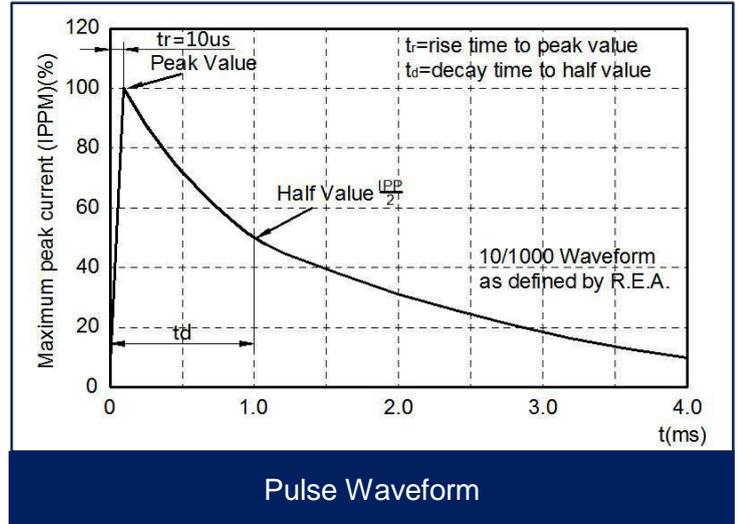
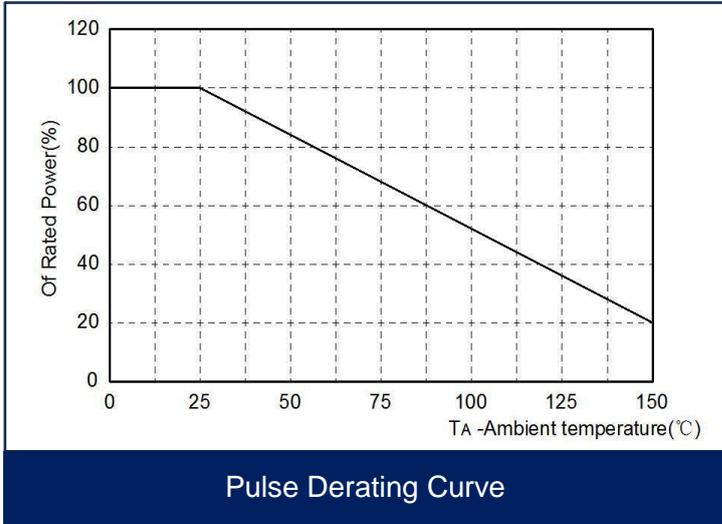
Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 10/1000µs waveform	P _{PP}	1500	W
Steady state power dissipation at T _L =75°C	P _{M(AV)}	5.0	W
Operating junction temperature range	T _j	-55 to +175	°C
Storage temperature range	T _{stg}	-55 to +175	°C

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



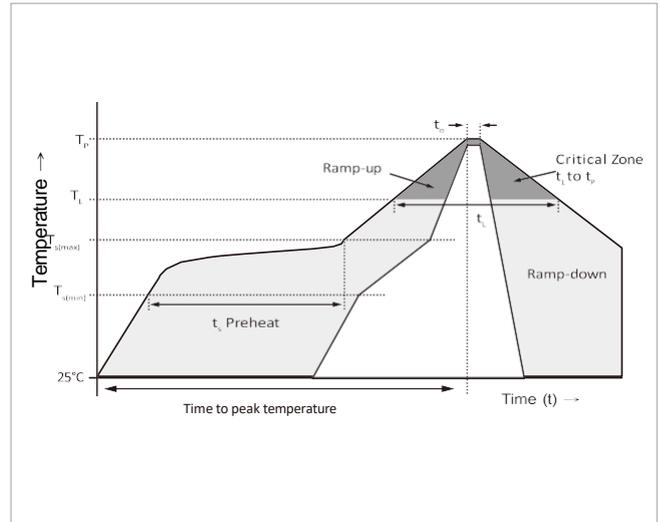
Symbol	Parameter
I _F	Mean Forward Current
V _F	Maximum Forward Voltage @ I _F
V _R	Peak Reverse Working Voltage
I _R	Reverse Leakage Current @ V _R
V _{BR}	Breakdown Voltage @ I _T
I _T	Test Current
I _{PP}	Maximum Reverse Peak Pulse Current
V _C	Clamping Voltage @ I _{PP}

V-I cure characteristics

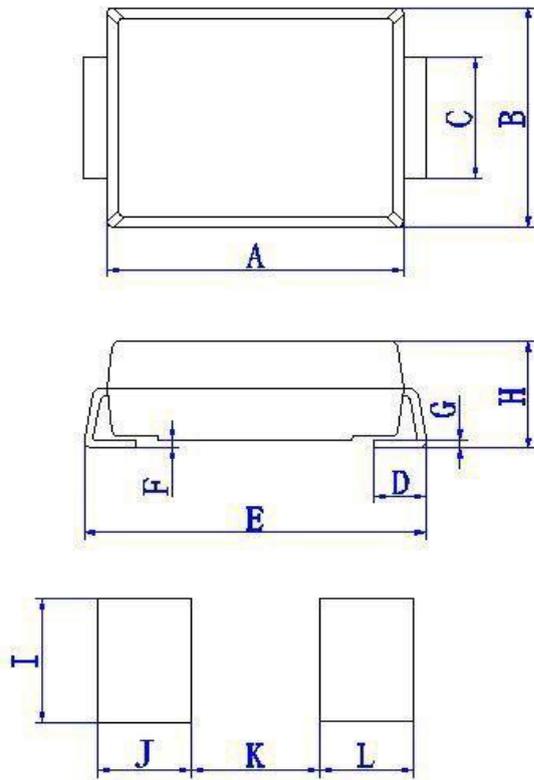


Soldering Parameters

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

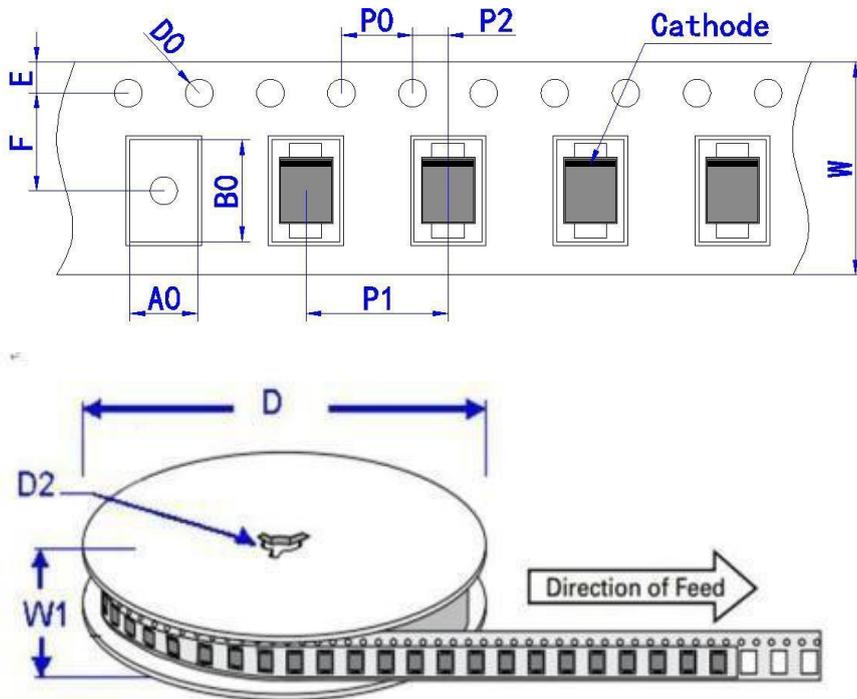


Package mechanical data & Suggested Land Pattern



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