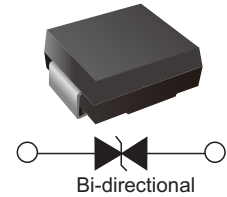
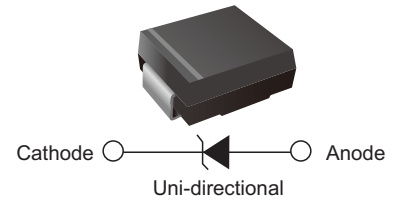


Transient Voltage Suppressors (TVS) Data Sheet

Features

- 3000W peak pulse power capability at 10/1000 μ s waveform, repetition rate (duty cycle): 0.01%
- Typical I_R less than 2 μ A above 10V
- Plastic package has underwriters laboratory flammability 94V-0
- Meets MSL level 1, per J-STD-020
- Fast response time
- For surface mounted applications in order to optimize board space
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- Lead free in comply with EU RoHS 2011/65/EU directives



Mechanical Data

- Case: SMC
- Terminal: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: For uni-directional types the band denotes cathode end, no marking on bi-directional types
- Standard Packaging: 16mm tape (EIA STD RS-481)

Applications

- I/O interface ■ Vcc bus ■ AC/DC power supply
- Low frequency signal transmission line (RS232, RS485, etc.)

Ordering Information

Part Number	Shipping	Reel
LTVCxxA(C)Q-TR3	3000PCS Tape&Reel	13 inchs

Maximum Ratings and Characteristics

Ratings at 25 $^{\circ}$ C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Unit
Peak pulse power dissipation at 10/1000 μ s waveform (Note1, Note2, Fig.1)	P_{PPM}	Minimum 3000	W
Peak pulse current of at 10/1000 μ s waveform (Note 1, Fig.3)	I_{PPM}	See Table	A
Steady state power dissipation at $T_A=50^{\circ}$ C (Fig.5)	$P_{M(AV)}$	6.5	W
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load, (JEDEC Method) (Note3, Fig.6)	I_{FSM}	300	A
Operating junction and Storage Temperature Range.	T_J, T_{STG}	-55 to +150	$^{\circ}$ C
Typical thermal resistance junction to lead	$R_{\theta JL}$	15	$^{\circ}$ C/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	75	$^{\circ}$ C/W

Notes:(1) Non-repetitive current pulse, per Fig.3 and derated above $T_A=25^{\circ}$ C per Fig.2.

(2) Mounted on 8.0mmx8.0mm copper pads to each terminal.

(3) 8.3ms single half sine-wave, or equivalent square wave, duty cycle=4 pulses per minutes maximum,unidirectional only.



Electrical Characteristics ($T_A=25^{\circ}\text{C}$)

Part Number (Uni)	Part Number (Bi)	Marking		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts) @ I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C @ I_{PP} (V)	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R @ V_R (μA)
		Uni	Bi		Min	Max				
LTVC5.0AQ	LTVC5.0CQ	RDE or 5Q	DDE or 5Q	5.0	6.40	7.00	10	9.2	326.1	800
LTVC6.0AQ	LTVC6.0CQ	RDG or 6Q	DDG or 6Q	6.0	6.67	7.37	10	10.3	291.3	500
LTVC6.5AQ	LTVC6.5CQ	RDK or 6Q5	DDK or 6Q5	6.5	7.22	7.98	10	11.2	267.9	400
LTVC7.0AQ	LTVC7.0CQ	PDM or 7Q	DDM or 7Q	7.0	7.78	8.60	10	12.0	250.0	200
LTVC7.5AQ	LTVC7.5CQ	PDP or 7Q5	DDP or 7Q5	7.5	8.33	9.21	1	12.9	232.6	100
LTVC8.0AQ	LTVC8.0CQ	PDR or 8Q	DDR or 8Q	8.0	8.89	9.83	1	13.6	220.6	50
LTVC8.5AQ	LTVC8.5CQ	PDT or 8Q5	DDT or 8Q5	8.5	9.44	10.40	1	14.4	208.3	20
LTVC9.0AQ	LTVC9.0CQ	PDV or 9Q	DDV or 9Q	9.0	10.00	11.10	1	15.4	194.8	10
LTVC10AQ	LTVC10CQ	PDX or 10Q	DDX or 10Q	10.0	11.10	12.30	1	17.0	176.5	5
LTVC11AQ	LTVC11CQ	PDZ or 11Q	DDZ or 11Q	11.0	12.20	13.50	1	18.2	164.8	2
LTVC12AQ	LTVC12CQ	PEE or 12Q	DEE or 12Q	12.0	13.30	14.70	1	19.9	150.8	2
LTVC13AQ	LTVC13CQ	PEG or 13Q	DEG or 13Q	13.0	14.40	15.90	1	21.5	139.5	2
LTVC14AQ	LTVC14CQ	PEK or 14Q	DEK or 14Q	14.0	15.60	17.20	1	23.2	129.3	2
LTVC15AQ	LTVC15CQ	PEM or 15Q	DEM or 15Q	15.0	16.70	18.50	1	24.4	123.0	2
LTVC16AQ	LTVC16CQ	PEP or 16Q	DEP or 16Q	16.0	17.80	19.70	1	26.0	115.4	2
LTVC17AQ	LTVC17CQ	PER or 17Q	DER or 17Q	17.0	18.90	20.90	1	27.6	108.7	2
LTVC18AQ	LTVC18CQ	PET or 18Q	DET or 18Q	18.0	20.00	22.10	1	29.2	102.7	2
LTVC20AQ	LTVC20CQ	PEV or 20Q	DEV or 20Q	20.0	22.20	24.50	1	32.4	92.6	2
LTVC22AQ	LTVC22CQ	PEX or 22Q	DEX or 22Q	22.0	24.40	26.90	1	35.5	84.5	2
LTVC24AQ	LTVC24CQ	PEZ or 24Q	DEZ or 24Q	24.0	26.70	29.50	1	38.9	77.1	2
LTVC26AQ	LTVC26CQ	PFE or 26Q	DFE or 26Q	26.0	28.90	31.90	1	42.1	71.3	2
LTVC28AQ	LTVC28CQ	PFG or 28Q	DFG or 28Q	28.0	31.10	34.40	1	45.4	66.1	2
LTVC30AQ	LTVC30CQ	PFK or 30Q	DFK or 30Q	30.0	33.30	36.80	1	48.4	62.0	2
LTVC33AQ	LTVC33CQ	PFM or 33Q	DFM or 33Q	33.0	36.70	40.60	1	53.3	56.3	2
LTVC36AQ	LTVC36CQ	PFQ or 36Q	DFQ or 36Q	36.0	40.00	44.20	1	58.1	51.6	2
LTVC40AQ	LTVC40CQ	PFR or 40Q	DFR or 40Q	40.0	44.40	49.10	1	64.5	46.5	2
LTVC43AQ	LTVC43CQ	PFT or 43Q	DFT or 43Q	43.0	47.80	52.80	1	69.4	43.2	2
LTVC45AQ	LTVC45CQ	PFV or 45Q	DFV or 45Q	45.0	50.00	55.30	1	72.7	41.3	2
LTVC48AQ	LTVC48CQ	PFX or 48Q	DFX or 48Q	48.0	53.30	58.90	1	77.4	38.8	2
LTVC51AQ	LTVC51CQ	PFZ or 51Q	DFZ or 51Q	51.0	56.70	62.70	1	82.4	36.4	2
LTVC54AQ	LTVC54CQ	PGE or 54Q	DGE or 54Q	54.0	60.00	66.30	1	87.1	34.4	2
LTVC58AQ	LTVC58CQ	PGG or 58Q	DGG or 58Q	58.0	64.40	71.20	1	93.6	32.1	2
LTVC60AQ	LTVC60CQ	PGK or 60Q	DGK or 60Q	60.0	66.70	73.70	1	96.8	31.0	2
LTVC64AQ	LTVC64CQ	PGM or 64Q	DGM or 64Q	64.0	71.10	78.60	1	103.0	29.1	2
LTVC70AQ	LTVC70CQ	PGP or 70Q	DGP or 70Q	70.0	77.80	86.00	1	113.0	26.5	2
LTVC75AQ	LTVC75CQ	PGR or 75Q	DGR or 75Q	75.0	83.30	92.10	1	121.0	24.8	2
LTVC78AQ	LTVC78CQ	PGT or 78Q	DGT or 78Q	78.0	86.70	95.80	1	126.0	23.8	2
LTVC85AQ	LTVC85CQ	PGV or 85Q	DGV or 85Q	85.0	94.40	104.00	1	137.0	21.9	2
LTVC90AQ	LTVC90CQ	PGX or 90Q	DGX or 90Q	90.0	100.00	111.00	1	146.0	20.5	2
LTVC100AQ	LTVC100CQ	PGZ or 100Q	DGZ or 100Q	100.0	111.00	123.00	1	162.0	18.5	2
LTVC110AQ	LTVC110CQ	PHE or 110Q	DHE or 110Q	110.0	122.00	135.00	1	177.0	16.9	2
LTVC120AQ	LTVC120CQ	PHG or 120Q	DHG or 120Q	120.0	133.00	147.00	1	193.0	15.5	2
LTVC130AQ	LTVC130CQ	PHK or 130Q	DHK or 130Q	130.0	144.00	159.00	1	209.0	14.4	2
LTVC150AQ	LTVC150CQ	PHM or 150Q	DHM or 150Q	150.0	167.00	185.00	1	243.0	12.3	2
LTVC160AQ	LTVC160CQ	PHP or 160Q	DHP or 160Q	160.0	178.00	197.00	1	259.0	11.6	2
LTVC170AQ	LTVC170CQ	PHR or 170Q	DHR or 170Q	170.0	189.00	209.00	1	275.0	10.9	2
LTVC180AQ	LTVC180CQ	HHT or 180Q	IHT or 180Q	180.0	201.00	222.00	1	292.0	10.3	2
LTVC190AQ	LTVC190CQ	HHV or 190Q	IHV or 190Q	190.0	211.00	233.00	1	308.0	9.7	2
LTVC200AQ	LTVC200CQ	HHX or 200Q	IHX or 200Q	200.0	224.00	247.00	1	324.0	9.3	2
LTVC210AQ	LTVC210CQ	HHZ or 210Q	IHZ or 210Q	210.0	237.00	263.00	1	340.0	8.8	2
LTVC220AQ	LTVC220CQ	HIE or 220Q	IIE or 220Q	220.0	246.00	272.00	1	356.0	8.4	2

Notes: For bidirectional type having V_R of 10V and less, the I_R limit is double.



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

Fig.1 Peak Pulse Power Rating Curve

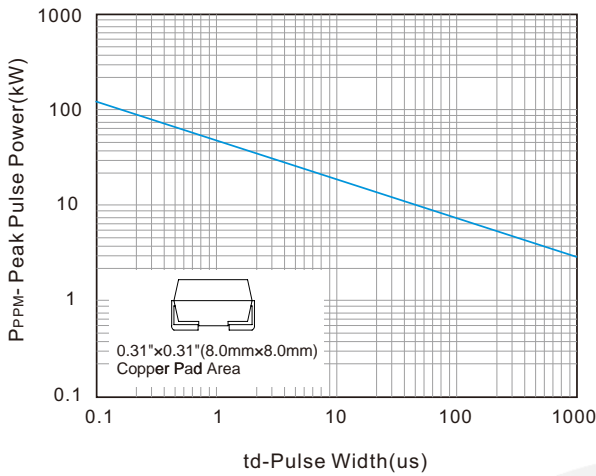


Fig.4 Typical Junction Capacitance

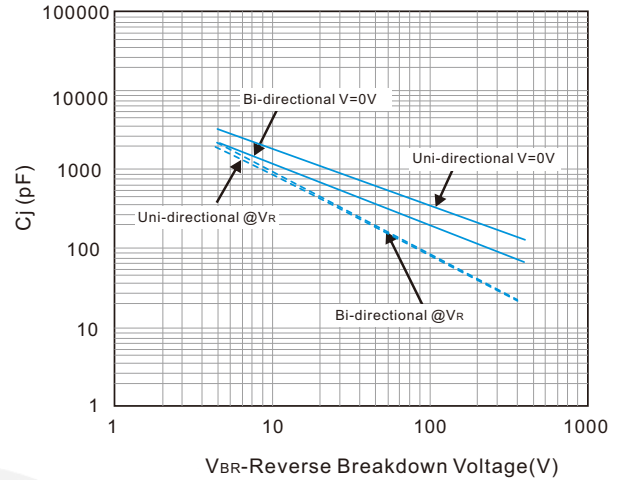


Fig.2 Pulse Derating Curve

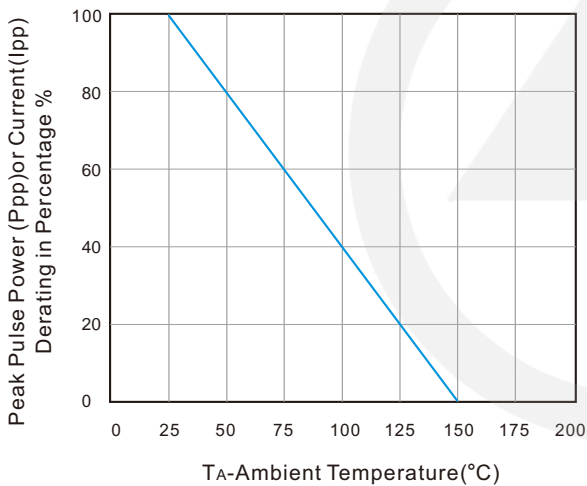


Fig.5 Steady State Power Dissipation Derating Curve

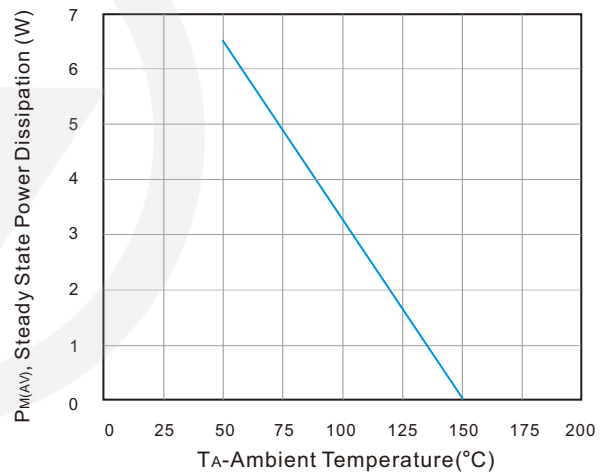


Fig.3 Pulse Waveform

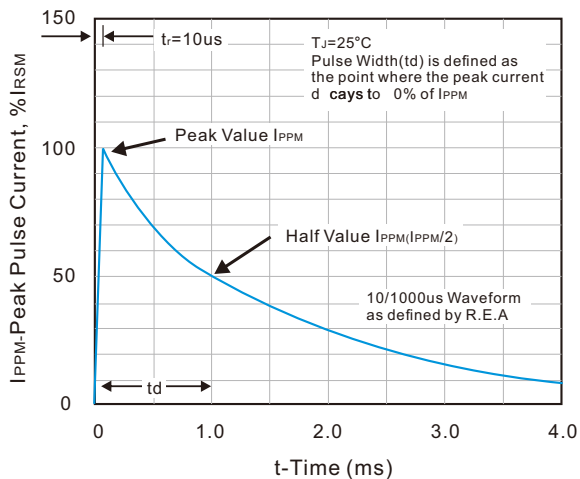
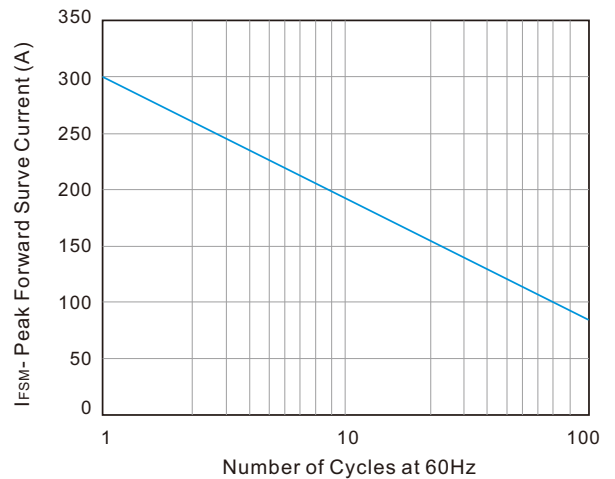
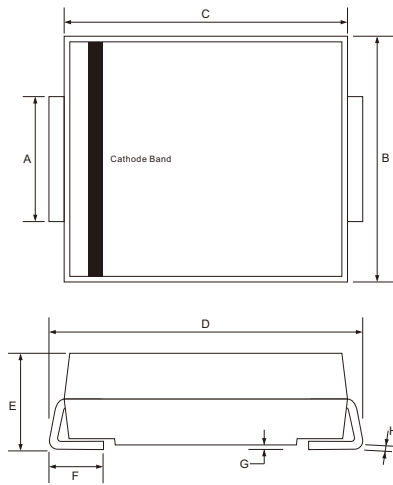


Fig.6 Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



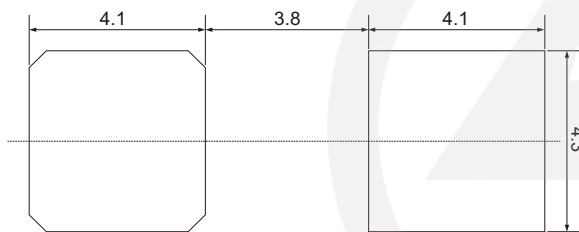
SMC Package Outline



Unit: mm

SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	2.75	3.27
B	5.59	6.22
C	6.50	7.11
D	7.60	8.13
E	1.99	2.80
F	0.76	1.60
G	0.05	0.31
H	0.10	0.31

SMC Suggested Pad Layout

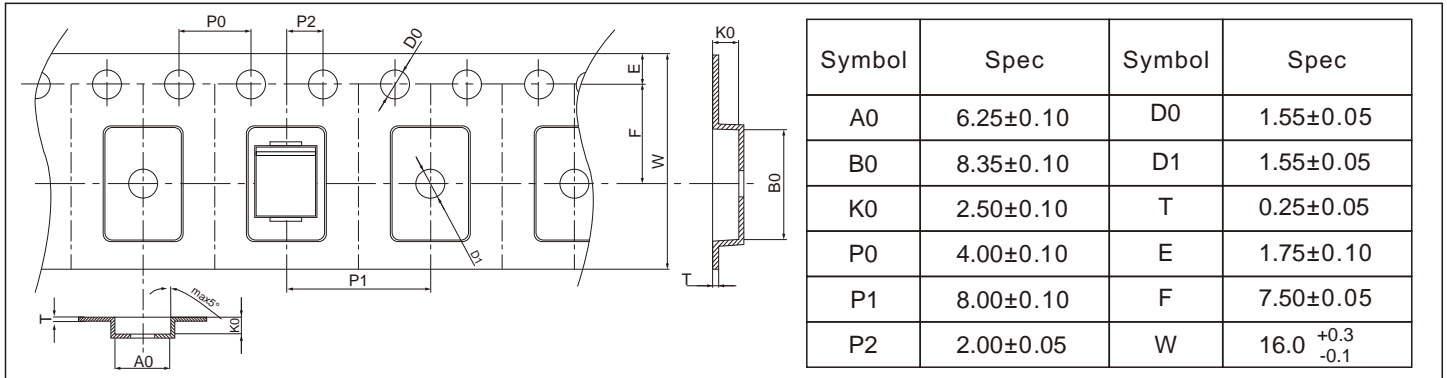


Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference purpose only.

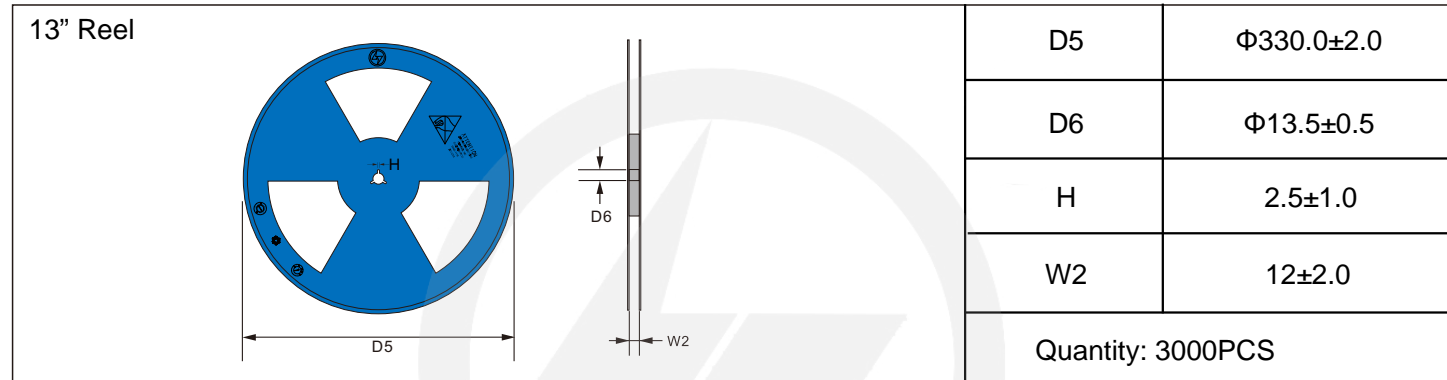
Carrier Tape Dimensions

Unit : mm

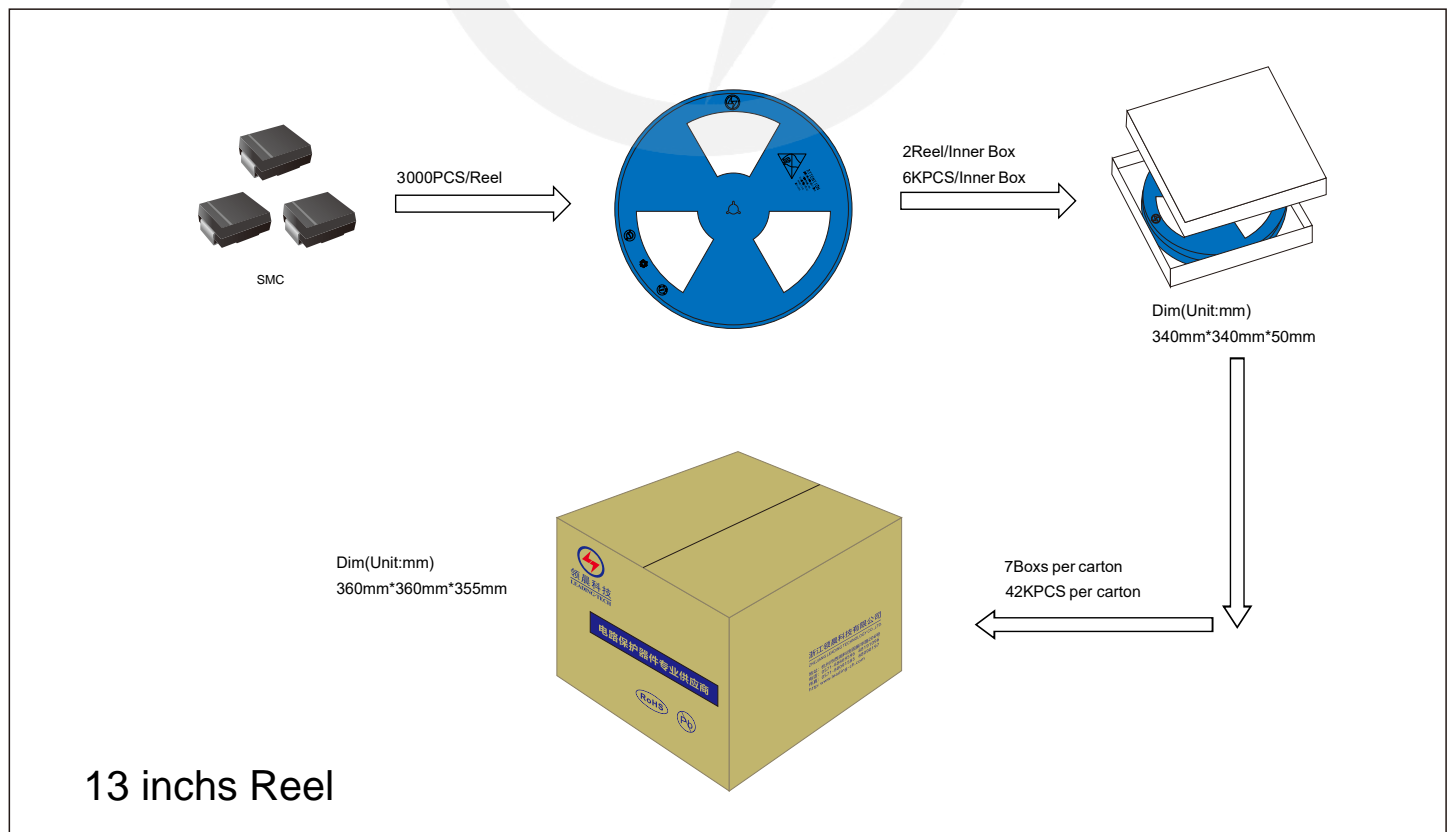


Reel Dimensions

Unit : mm



Packaging





Recommended Soldering Conditions



Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T _L to T _P)	3°C/second max.
Preheat	
-Temperature Min (T _{S min})	150°C
-Temperature Max (T _{S max})	200°C
-Time (min to max) (t _s)	60-180 seconds
T _{S max} to T _L	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
-Temperature (T _L)	217°C
-Time (t _L)	60-150 seconds
Peak Temperature (T _P)	260°C
Time within 5°C of actual Peak Temperature (t _p)	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

Important Notice and Disclaimer

Leading-Tech reserves the right to make changes to this document and its products and specifications at any time without notice.

Customers should obtain and confirm the latest product information and specifications before final design, purchase or use.

Leading-Tech makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, not does Leading-Tech assume any liability for application assistance or customer product design.

Leading-Tech does not warrant or accept any liability with products which are purchase or used for any unintended or unauthorized application.

No license is granted by implication or otherwise under any intellectual property rights of Leading-Tech.

Leading-Tech products are not authorized for use as critical components in life support devices or systems without express written approval of Leading-tech.

Version Update information

Series NO.	Enactment/Revision Date	Effective Date	Version	Revision content	Revision Reason	Revision Person	Note
01	2024.3.18	2024.3.18	3.0	New File	/	Ding	
02	2025.06.12	2025.06.12	3.1	Update packaging information	/	Ding	
03	2025.08.26	2025.08.26	3.2	Change in packaging quantity	/	Ding	