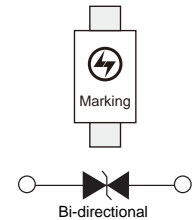
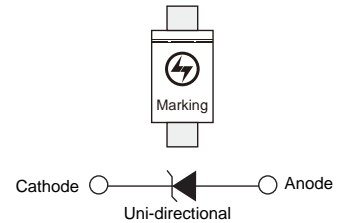
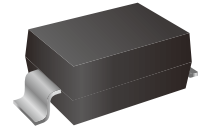


## Transient Voltage Suppressors (TVS) Data Sheet

### Features

- 600W peak pulse power capability at 10/1000 $\mu$ s waveform, repetition rate (duty cycle): 0.01%
- Plastic package has underwriters laboratory flammability 94V-0
- Meets MSL level 1, per J-STD-020
- Typical  $I_R$  less than 1 $\mu$ A above 10V
- For surface mounted applications in order to optimize board space
- Low inductance
- Fast response time
- Low profile package
- Glass passivated junction
- Excellent clamping capability
- Built-in strain relief
- Lead free in comply with EU RoHS 2011/65/EU directives



### Mechanical Data

- Case: SMAW
- Mounting Position: Any
- 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

### Applications

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

### Ordering Information

Part Number	Marking	Shipping	Reel
LTVxxA(C)JP	See the Table	8000PCS Tape&Reel	13 inchs

### Maximum Ratings and Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Unit
Peak pulse power dissipation at 10/1000 $\mu$ s waveform (Note1, Note2, Fig.1)	$P_{PPM}$	Minimum 600	W
Peak pulse current of at 10/1000 $\mu$ s waveform (Note 1, Fig.3)	$I_{PPM}$	See Table	A
Steady state power dissipation at $T_A=50^\circ\text{C}$ (Fig.5)	$P_{M(AV)}$	5	W
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load, (JEDEC Method) (Note3, Fig.6)	$I_{FSM}$	100	A
Operating junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$
Typical thermal resistance junction to lead	$R_{\theta JL}$	20	$^\circ\text{C/W}$
Typical thermal resistance junction to ambient	$R_{\theta JA}$	100	$^\circ\text{C/W}$

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

(2) Mounted on 5.0mm $\times$ 5.0mm (0.03mm thick) 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.



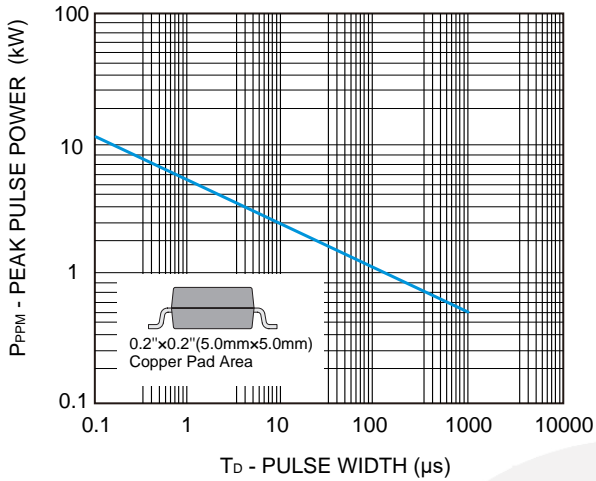
**Electrical Characteristics** ( $T_A=25^\circ\text{C}$ )

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 $I_R$ @ $V_R$ ( $\mu\text{A}$ )
				Min	Max				
LTV6.8AJP	LTV6.8CJP	6JP8	5.80	6.45	7.14	10	10.5	58.1	500
LTV7.5AJP	LTV7.5CJP	7JP5	6.40	7.13	7.88	10	11.3	54.0	400
LTV8.2AJP	LTV8.2CJP	8JP2	7.02	7.79	8.61	10	12.1	50.4	200
LTV9.1AJP	LTV9.1CJP	9JP1	7.78	8.65	9.55	1	13.4	45.5	50
LTV10AJP	LTV10CJP	10JP	8.55	9.50	10.50	1	14.5	42.1	10
LTV11AJP	LTV11CJP	11JP	9.40	10.50	11.60	1	15.6	39.1	1
LTV12AJP	LTV12CJP	12JP	10.20	11.40	12.60	1	16.7	36.5	1
LTV13AJP	LTV13CJP	13JP	11.10	12.40	13.70	1	18.2	33.5	1
LTV15AJP	LTV15CJP	15JP	12.80	14.30	15.80	1	21.2	28.8	1
LTV16AJP	LTV16CJP	16JP	13.60	15.20	16.80	1	22.5	27.1	1
LTV18AJP	LTV18CJP	18JP	15.30	17.10	18.90	1	25.5	24.2	1
LTV20AJP	LTV20CJP	20JP	17.10	19.00	21.00	1	27.7	22.0	1
LTV22AJP	LTV22CJP	22JP	18.80	20.90	23.10	1	30.6	19.9	1
LTV24AJP	LTV24CJP	24JP	20.50	22.80	25.20	1	33.2	18.4	1
LTV27AJP	LTV27CJP	27JP	23.10	25.70	28.40	1	37.5	16.3	1
LTV30AJP	LTV30CJP	30JP	25.60	28.50	31.50	1	41.4	14.7	1
LTV33AJP	LTV33CJP	33JP	28.20	31.40	34.70	1	45.7	13.3	1
LTV36AJP	LTV36CJP	36JP	30.80	34.20	37.80	1	49.9	12.2	1
LTV39AJP	LTV39CJP	39JP	33.30	37.10	41.00	1	53.9	11.3	1
LTV43AJP	LTV43CJP	43JP	36.80	40.90	45.20	1	59.3	10.3	1
LTV47AJP	LTV47CJP	47JP	40.20	44.70	49.40	1	64.8	9.4	1
LTV51AJP	LTV51CJP	51JP	43.60	48.50	53.60	1	70.1	8.7	1
LTV56AJP	LTV56CJP	56JP	47.80	53.20	58.80	1	77	7.9	1
LTV62AJP	LTV62CJP	62JP	53.00	58.90	65.10	1	85	7.2	1
LTV68AJP	LTV68CJP	68JP	58.10	64.60	71.40	1	92	6.6	1
LTV75AJP	LTV75CJP	75JP	64.10	71.30	78.80	1	103	5.9	1
LTV82AJP	LTV82CJP	82JP	70.10	77.90	86.10	1	113	5.4	1
LTV91AJP	LTV91CJP	91JP	77.80	86.50	95.50	1	125	4.9	1
LTV100AJP	LTV100CJP	100JP	85.50	95.00	105.00	1	137	4.5	1
LTV110AJP	LTV110CJP	110JP	94.00	105.00	116.00	1	152	4.0	1
LTV120AJP	LTV120CJP	120JP	102.00	114.00	126.00	1	165	3.7	1
LTV130AJP	LTV130CJP	130JP	111.00	124.00	137.00	1	179	3.4	1
LTV150AJP	LTV150CJP	150JP	128.00	143.00	158.00	1	207	2.9	1
LTV160AJP	LTV160CJP	160JP	136.00	152.00	168.00	1	219	2.8	1
LTV170AJP	LTV170CJP	170JP	145.00	162.00	179.00	1	234	2.6	1
LTV180AJP	LTV180CJP	180JP	154.00	171.00	189.00	1	246	2.5	1
LTV200AJP	LTV200CJP	200JP	171.00	190.00	210.00	1	274	2.2	1
LTV220AJP	LTV220CJP	220JP	185.00	209.00	231.00	1	328	1.9	1
LTV250AJP	LTV250CJP	250JP	214.00	237.00	263.00	1	344	1.8	1
LTV300AJP	LTV300CJP	300JP	256.00	285.00	315.00	1	414	1.5	1
LTV350AJP	LTV350CJP	350JP	300.00	332.00	368.00	1	482	1.3	1
LTV400AJP	LTV400CJP	400JP	342.00	380.00	420.00	1	548	1.1	1
LTV440AJP	LTV440CJP	440JP	376.00	418.00	462.00	1	602	1.0	1
LTV480AJP	LTV480CJP	480JP	408.00	456.00	504.00	1	658	0.9	1
LTV510AJP	LTV510CJP	510JP	434.00	485.00	535.00	1	698	0.9	1
LTV530AJP	LTV530CJP	530JP	450.00	503.50	556.50	1	725	0.8	1
LTV540AJP	LTV540CJP	540JP	459.00	513.00	567.00	1	740	0.8	1
LTV550AJP	LTV550CJP	550JP	467.00	522.50	577.50	1	760	0.8	1

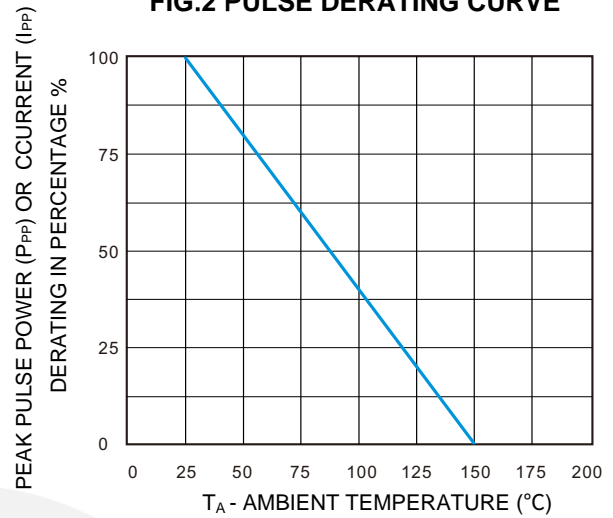
Notes: For bidirectional type having  $V_R$  of 10V and less, the  $I_R$  limit is double.

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

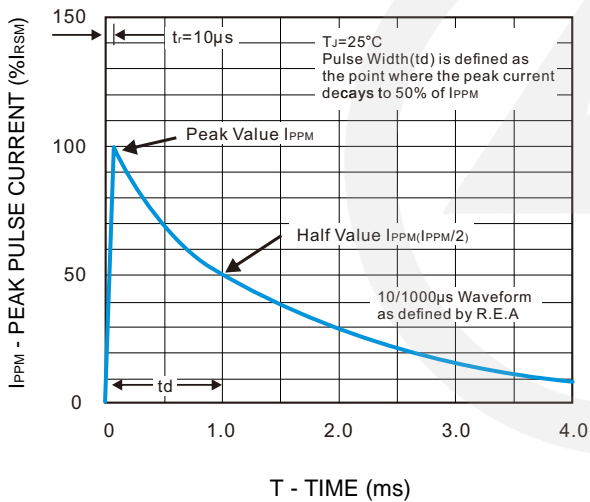
**FIG.1 PEAK PULSE POWER RATING CURVE**



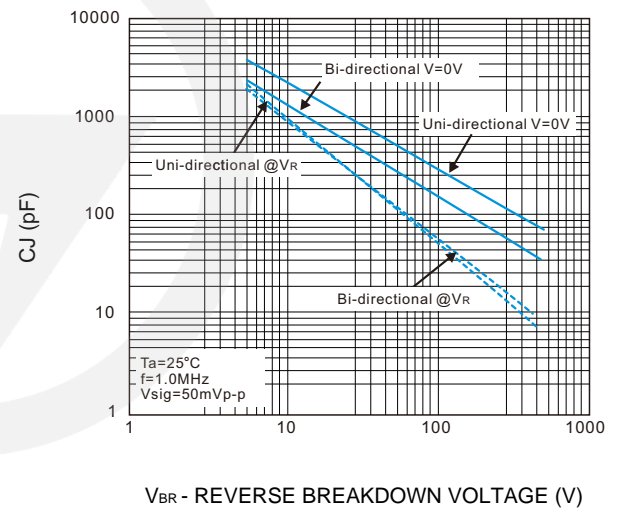
**FIG.2 PULSE DERATING CURVE**



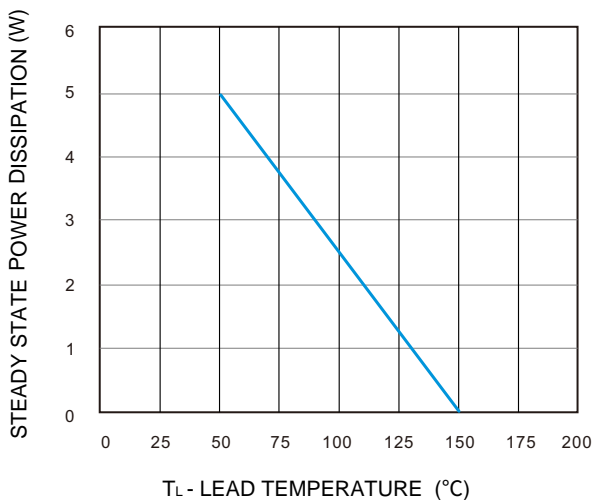
**FIG.3 PULSE WAVEFORM**



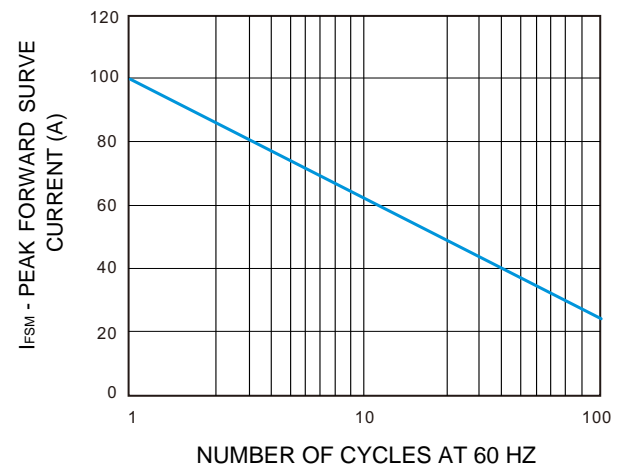
**FIG.4 TYPICAL JUNCTION CAPACITANCE**



**FIG.5 STEADY STATE POWER DISSIPATION DERATING CURVE**

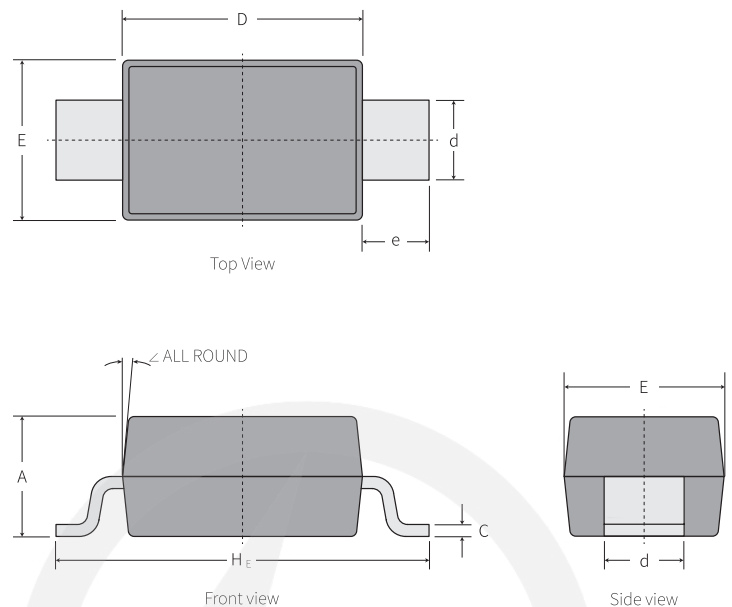


**FIG.6 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNI-DIRECTIONAL ONLY**



**Package Outline**

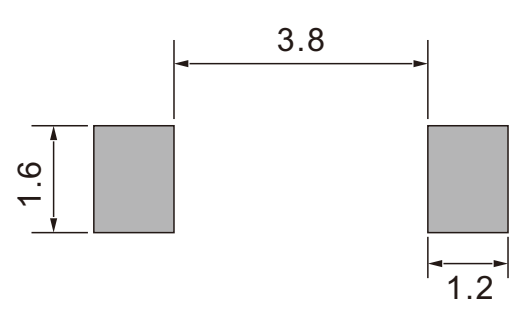
**SMAW** Unit : mm



UNIT		A	C	D	E	H <sub>E</sub>	d	e	∠
mm	max	2.00	0.28	3.80	2.60	5.80	1.40	1.20	6°
	min	1.60	0.10	3.40	2.20	5.40	1.00	0.80	

**Suggested Pad Layout**

**SMAW** Unit : mm

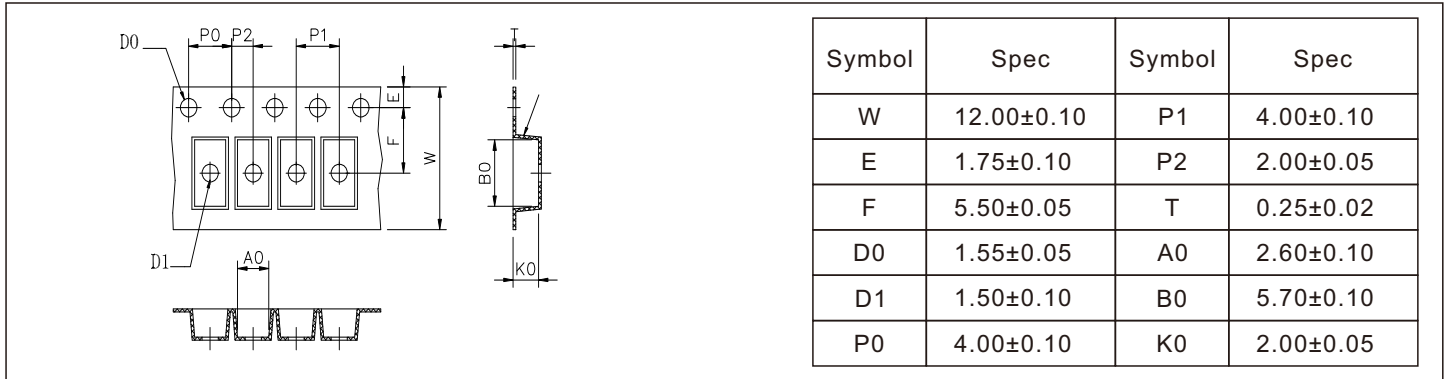


**Note:**

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

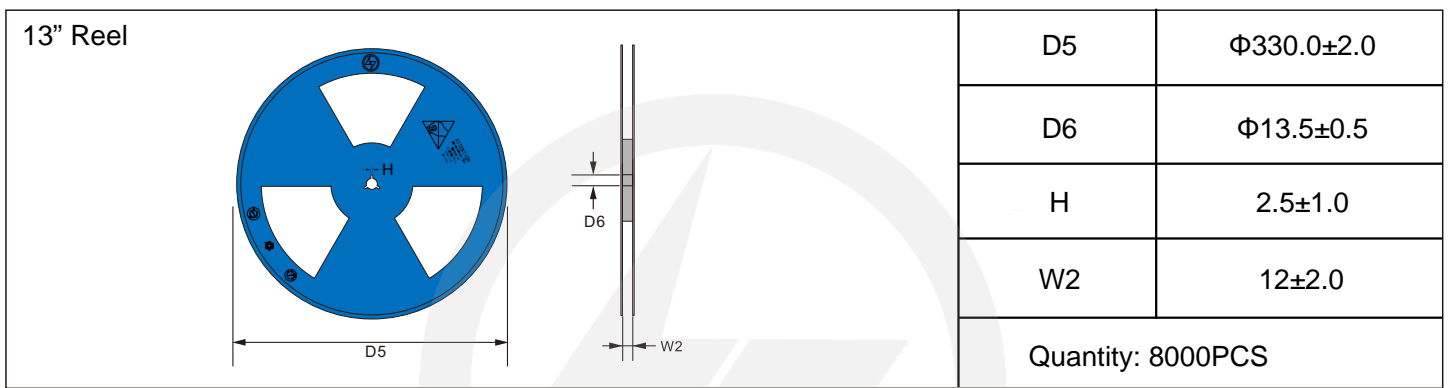
## Carrier Tape Dimensions

Unit : mm

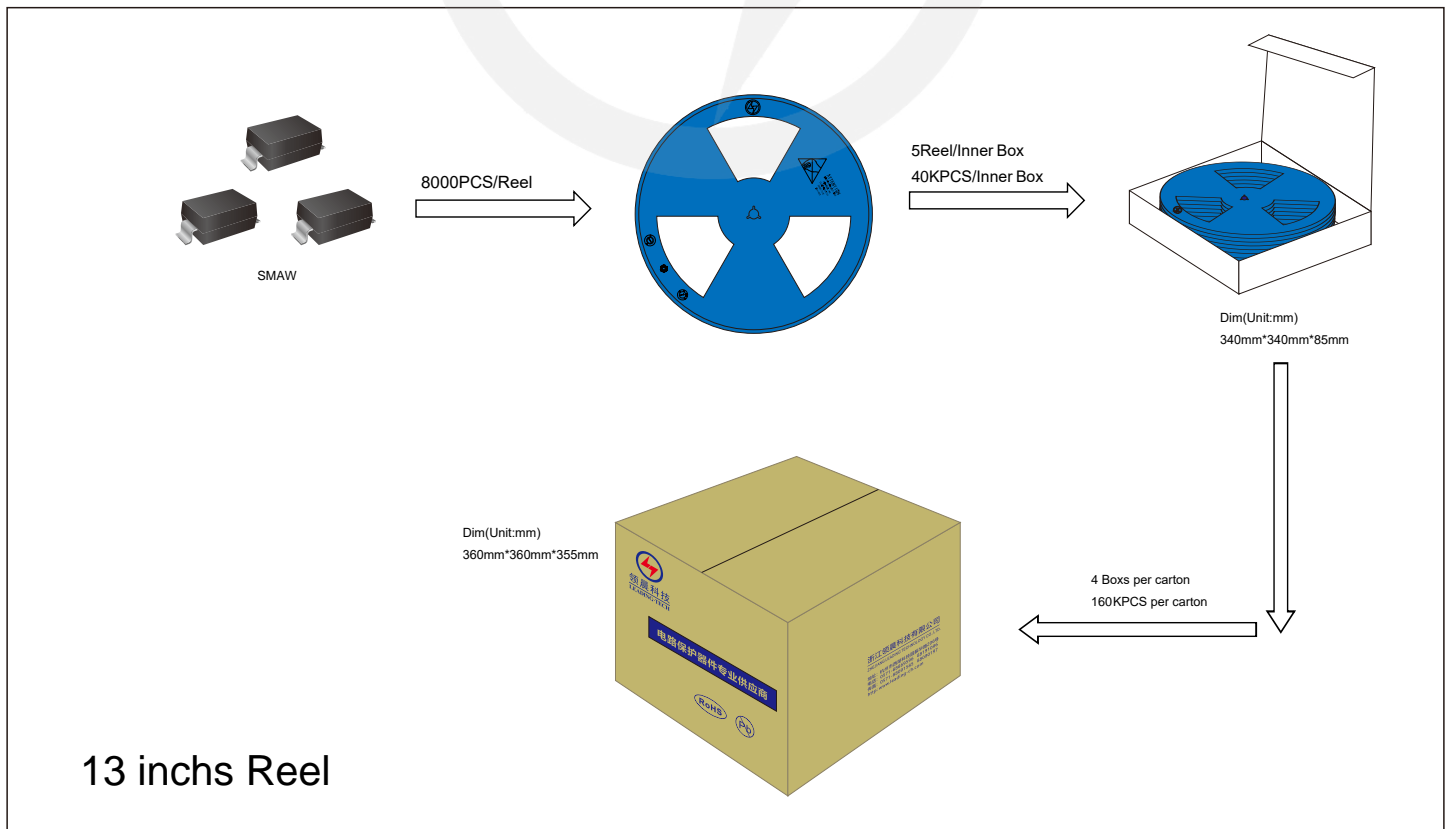


## Reel Dimensions

Unit : mm



## Packaging





**Recommended Soldering Conditions**



**Recommended Conditions**

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T <sub>L</sub> to T <sub>P</sub> )	3°C/second max.
Preheat	
-Temperature Min (T <sub>S min</sub> )	150°C
-Temperature Max (T <sub>S max</sub> )	200°C
-Time (min to max) (t <sub>s</sub> )	60-180 seconds
T <sub>S max</sub> to T <sub>L</sub>	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
-Temperature (T <sub>L</sub> )	217°C
-Time (t <sub>L</sub> )	60-150 seconds
Peak Temperature (T <sub>P</sub> )	260°C
Time within 5°C of actual Peak Temperature (t <sub>p</sub> )	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

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## Version Update Information

Series NO.	Enactment/Revision Date	Effective Date	Version	Revision content	Revision Reason	Revision Person	Note
01	2023.11.29	2023.11.29	1.0	New File	/	Ding	
02	2025.06.27	2025.06.27	1.1	T <sub>J</sub> , T <sub>STG</sub> Change to -55 to +150°C	/	Ding	