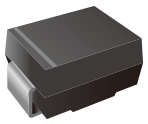
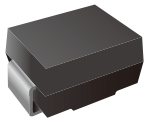
LTVBxxA(C)JP Series

Transient Voltage Suppressors (TVS) Data Sheet

Features



Uni-directional



Bi-directional

- 600W peak pulse power capability at 10/1000μs waveform,repetition rate (duty cycle): 0.01%
- Typical I_R less than 1μA 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: SMB
- 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
- Vcc bus
- AC/DC power supply
- Low frequency signal transmission line (RS232, RS485, etc.)

Ordering Information

Part Number	Shipping	Reel
LTVBxxA(C)JP-TR3	3000PCS Tape&Reel	13 inchs

Maximum Ratings and Characteristics

Ratings at 25℃ ambient temperature unless otherwise specified.

Rating	Symbol	Value	Units
Peak pulse power dissipation at 10/1000μs waveform (Note1, Note2, Fig.1)	P_{PPM}	Minimum 600	W
Peak pulse current of at 10/1000μs waveform (Note 1, Fig.3)	I_{PPM}	See Table	A
Steady state power dissipation at T_A=50℃ (Fig.5)	$P_{M(AV)}$	5.0	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	℃
Typical thermal resistance junction to lead	$R_{\theta JL}$	20	℃/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	100	℃/W

Notes: 1. Non-repetitive current pulse, per Fig.3 and derated above T_A=25℃ per Fig.2.
2. Mounted on 5.0mm×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℃)

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				
LTVB6.8AJP	LTVB6.8CJP	6V8A	6V8C	5.80	6.45	7.14	10	10.5	58.1	500
LTVB7.5AJP	LTVB7.5CJP	7V5A	7V5C	6.40	7.13	7.88	10	11.3	54.0	400
LTVB8.2AJP	LTVB8.2CJP	8V2A	8V2C	7.02	7.79	8.61	10	12.1	50.4	200
LTVB9.1AJP	LTVB9.1CJP	9V1A	9V1C	7.78	8.65	9.55	1	13.4	45.5	50
LTVB10AJP	LTVB10CJP	10A	10C	8.55	9.50	10.50	1	14.5	42.1	10
LTVB11AJP	LTVB11CJP	11A	11C	9.40	10.50	11.60	1	15.6	39.1	1
LTVB12AJP	LTVB12CJP	12A	12C	10.20	11.40	12.60	1	16.7	36.5	1
LTVB13AJP	LTVB13CJP	13A	13C	11.10	12.40	13.70	1	18.2	33.5	1
LTVB15AJP	LTVB15CJP	15A	15C	12.80	14.30	15.80	1	21.2	28.8	1
LTVB16AJP	LTVB16CJP	16A	16C	13.60	15.20	16.80	1	22.5	27.1	1
LTVB18AJP	LTVB18CJP	18A	18C	15.30	17.10	18.90	1	25.5	24.2	1
LTVB20AJP	LTVB20CJP	20A	20C	17.10	19.00	21.00	1	27.7	22.0	1
LTVB22AJP	LTVB22CJP	22A	22C	18.80	20.90	23.10	1	30.6	19.9	1
LTVB24AJP	LTVB24CJP	24A	24C	20.50	22.80	25.20	1	33.2	18.4	1
LTVB27AJP	LTVB27CJP	27A	27C	23.10	25.70	28.40	1	37.5	16.3	1
LTVB30AJP	LTVB30CJP	30A	30C	25.60	28.50	31.50	1	41.4	14.7	1
LTVB33AJP	LTVB33CJP	33A	33C	28.20	31.40	34.70	1	45.7	13.3	1
LTVB36AJP	LTVB36CJP	36A	36C	30.80	34.20	37.80	1	49.9	12.2	1
LTVB39AJP	LTVB39CJP	39A	39C	33.30	37.10	41.00	1	53.9	11.3	1
LTVB43AJP	LTVB43CJP	43A	43C	36.80	40.90	45.20	1	59.3	10.3	1
LTVB47AJP	LTVB47CJP	47A	47C	40.20	44.70	49.40	1	64.8	9.4	1
LTVB51AJP	LTVB51CJP	51A	51C	43.60	48.50	53.60	1	70.1	8.7	1
LTVB56AJP	LTVB56CJP	56A	56C	47.80	53.20	58.80	1	77	7.9	1
LTVB62AJP	LTVB62CJP	62A	62C	53.00	58.90	65.10	1	85	7.2	1
LTVB68AJP	LTVB68CJP	68A	68A	58.10	64.60	71.40	1	92	6.6	1
LTVB75AJP	LTVB75CJP	75A	75C	64.10	71.30	78.80	1	103	5.9	1
LTVB82AJP	LTVB82CJP	82A	82C	70.10	77.90	86.10	1	113	5.4	1
LTVB91AJP	LTVB91CJP	91A	91C	77.80	86.50	95.50	1	125	4.9	1
LTVB100AJP	LTVB100CJP	100A	100C	85.50	95.00	105.00	1	137	4.5	1
LTVB110AJP	LTVB110CJP	110A	110C	94.00	105.00	116.00	1	152	4.0	1
LTVB120AJP	LTVB120CJP	120A	120C	102.00	114.00	126.00	1	165	3.7	1
LTVB130AJP	LTVB130CJP	130A	130C	111.00	124.00	137.00	1	179	3.4	1
LTVB150AJP	LTVB150CJP	150A	150C	128.00	143.00	158.00	1	207	2.9	1
LTVB160AJP	LTVB160CJP	160A	160C	136.00	152.00	168.00	1	219	2.8	1
LTVB170AJP	LTVB170CJP	170A	170C	145.00	162.00	179.00	1	234	2.6	1
LTVB180AJP	LTVB180CJP	180A	180C	154.00	171.00	189.00	1	246	2.5	1
LTVB200AJP	LTVB200CJP	200A	200C	171.00	190.00	210.00	1	274	2.2	1
LTVB220AJP	LTVB220CJP	220A	220C	185.00	209.00	231.00	1	328	1.9	1
LTVB250AJP	LTVB250CJP	250A	250C	214.00	237.00	263.00	1	344	1.8	1
LTVB300AJP	LTVB300CJP	300A	300C	256.00	285.00	315.00	1	414	1.5	1
LTVB350AJP	LTVB350CJP	350A	350C	300.00	332.00	368.00	1	482	1.3	1
LTVB400AJP	LTVB400CJP	400A	400C	342.00	380.00	420.00	1	548	1.1	1
LTVB440AJP	LTVB440CJP	440A	440C	376.00	418.00	462.00	1	602	1.0	1
LTVB480AJP	LTVB480CJP	480A	480C	408.00	456.00	504.00	1	658	0.9	1
LTVB510AJP	LTVB510CJP	510A	510C	434.00	485.00	535.00	1	698	0.9	1
LTVB530AJP	LTVB530CJP	530A	530C	450.00	503.50	556.50	1	725	0.8	1
LTVB540AJP	LTVB540CJP	540A	540C	459.00	513.00	567.00	1	740	0.8	1
LTVB550AJP	LTVB550CJP	550A	550C	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.

Characteristic Curves

Fig.1 Peak Pulse Power Rating Curve

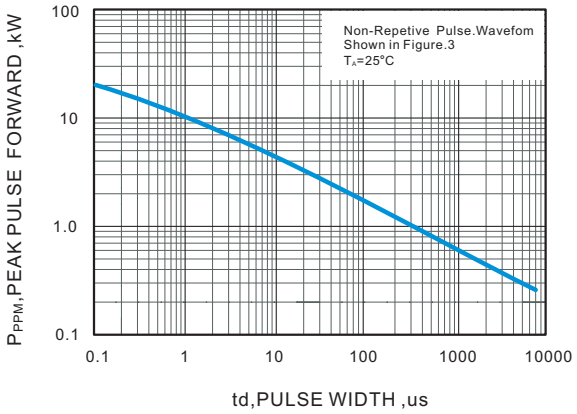


Fig.2 Forward Current Derating Curve

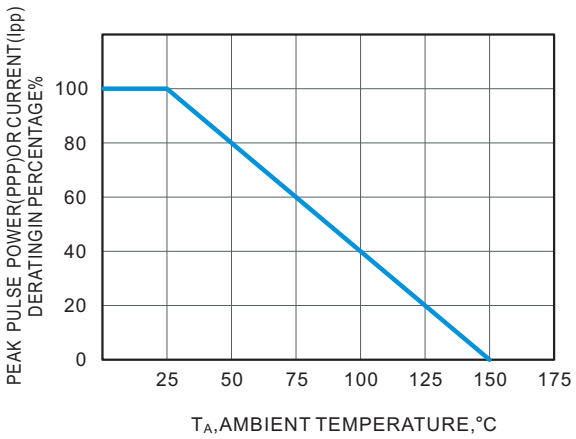


Fig.3 Pulse Waveform

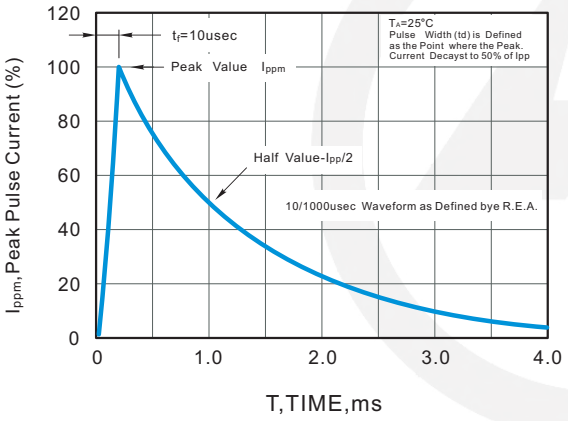
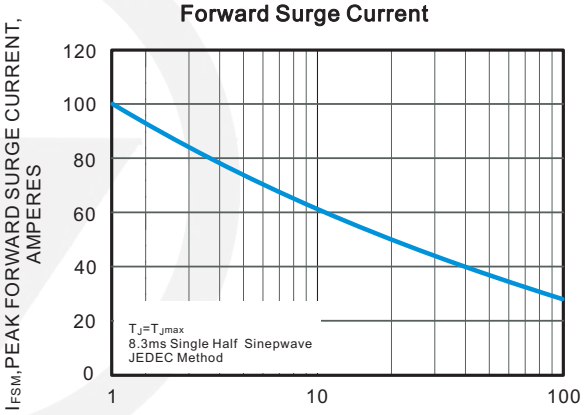
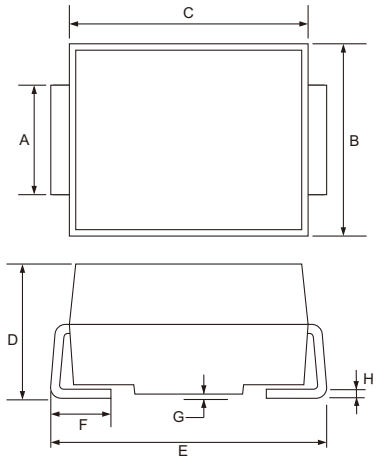


Fig.4 Maximum Non-Repetitive Peak Forward Surge Current



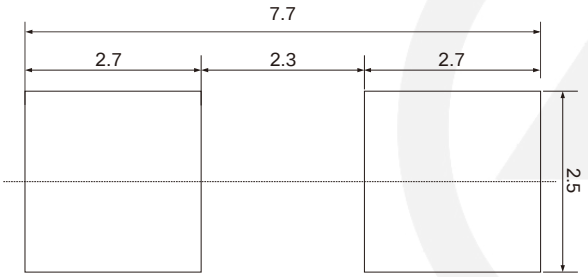
SMB Package Outline



Unit: mm

SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	1.90	2.20
B	3.30	3.94
C	4.05	4.75
D	2.13	2.65
E	5.08	5.59
F	0.76	1.52
G	0.203 TYP.	
H	0.15	0.31

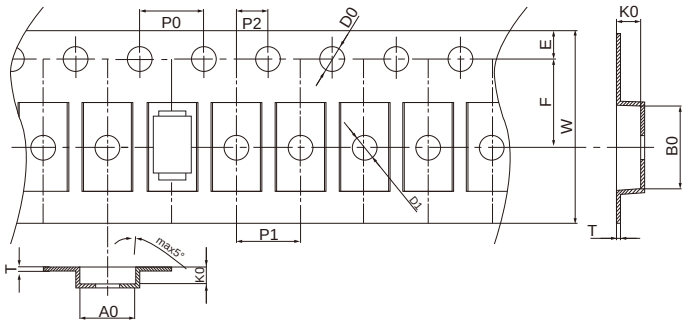
SMB Suggested Pad Layout



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

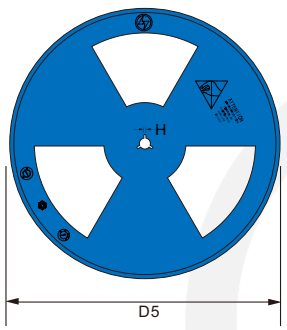


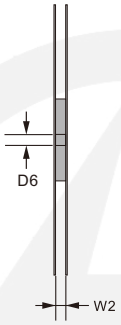
Symbol	Spec	Symbol	Spec
A0	3.80±0.10	D0	1.55±0.05
B0	5.45±0.10	D1	1.55±0.05
K0	2.50±0.10	T	0.25±0.05
P0	4.00±0.10	E	1.75±0.10
P1	8.00±0.10	F	5.50±0.05
P2	2.00±0.10	W	12.0 $^{+0.3}_{-0.1}$

Reel Dimensions

Unit：mm

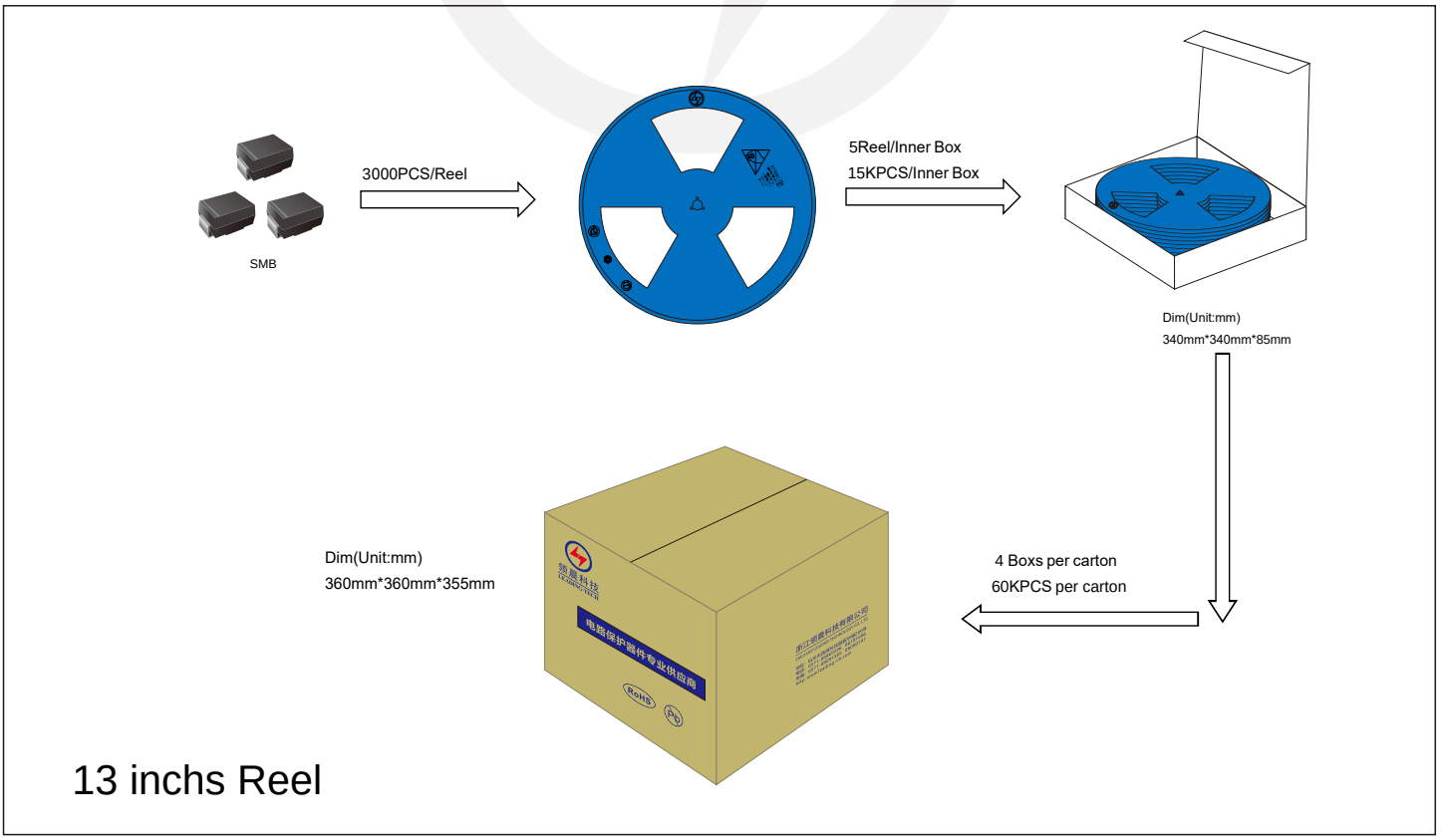
13” Reel





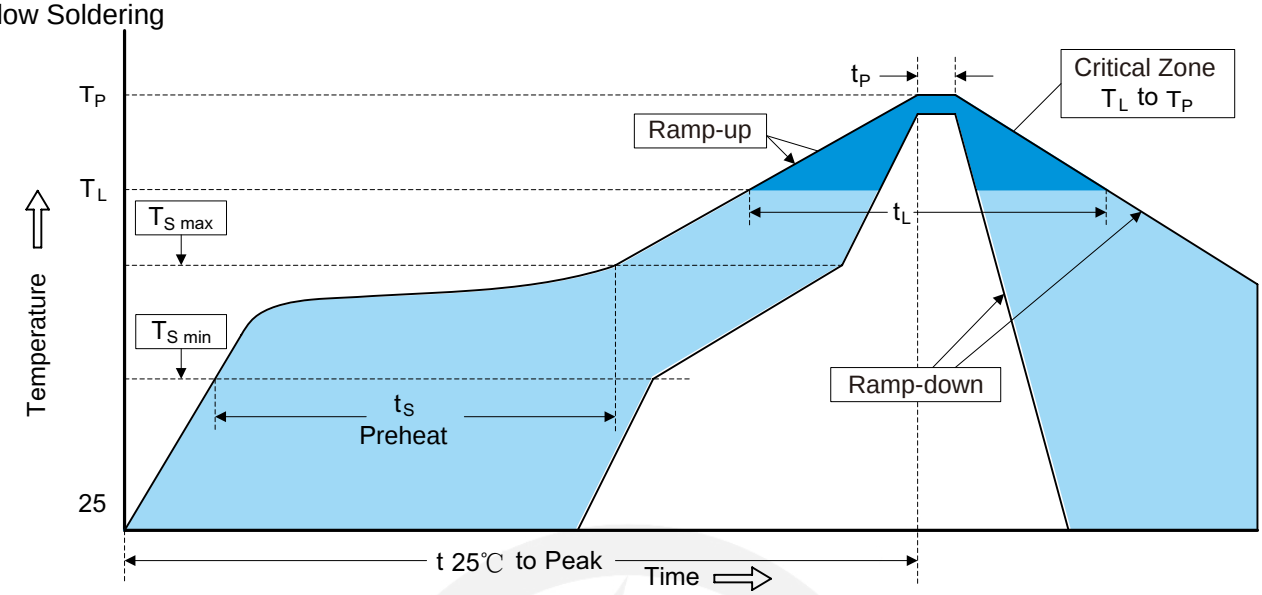
D5	Φ330.0±2.0
D6	Φ13.5±0.5
H	2.5±1.0
W2	12±2.0
Quantity: 3000PCS	

Packaging



Recommended Soldering Conditions

Reflow Soldering



Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3℃/second max.
Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_S)	 150℃ 200℃ 60-180 seconds
$T_{S\ max}$ to T_L -Ramp-up Rate	 3℃/second max.
Time maintained above: -Temperature (T_L) -Time (t_L)	 217℃ 60-150 seconds
Peak Temperature (T_P)	260℃
Time within 5℃ of actual Peak Temperature (t_P)	20-40 seconds
Ramp-down Rate	6℃/second max.
Time 25℃ 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	2024.3.19	2024.3.19	3.0	New File	/	Ding	
02	2025.06.11	2025.06.11	3.1	Update packaging information	/	Ding	