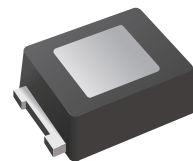




Transient Voltage Suppressors (TVS) Data Sheet

Features

- Top-side Cooling(TSC) Packaging technology
- For surface mounted applications in order to optimize board space
- Low profile package
- Low inductance
- Plastic package has Underwriters Laboratory Flammability
- Lead free in comply with EU RoHS 2011/65/EU directives



Mechanical Data

- Case: SMHS
- Terminals: Solderable per MIL-STD-750, Method 2026
- Polarity: For uni-directional types the band denotes cathode end, no marking on bi-directional types

Ordering Information

Part Number	Marking	Shipping	Reel
LTVxxA(C)D	See the Table	15000PCS Tape&Reel	13 inches

Maximum Ratings and Characteristics

Ratings at 25 °C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation on TA=25°C (Note1,2,5, Fig1)	P_{PPM}	200	W
Peak Forward Surge Current (Note3)	I_{FSM} (UNI)	20	A
Peak Pulse Current on 10/1000 us waveform (Note1 Fig 2)	I_{PPM}	see Table 1	A
Steady State Power Dissipation (Note4)	$P_{M(AV)}$	1	W
Operating Junction and Storage Range	T_J, T_{STG}	-55 to +150	°C
Typical Thermal Resistance (Note6)	$R_{\theta JA}$	67	°C/W

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

(2) Mounted on 5mm² copper pads to each terminal

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

(4) lead temperature at $T_L=75^\circ\text{C}$

(5) Peak pulse power. waveform is $t_p=10/1000\mu\text{s}$

(6) P.C.B. mounted with 0.1" × 0.1" (2mm x 2mm) copper pad areas.



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)
				Min	Max				
LTV5.0AD	LTV5.0CD	5D	5	6.4	7	10	9.2	21.7	400
LTV6.0AD	LTV6.0CD	6D	6	6.67	7.37	10	10.3	19.4	400
LTV6.5AD	LTV6.5CD	6D5	6.5	7.22	7.98	10	11.2	17.9	250
LTV7.0AD	LTV7.0CD	7D	7	7.78	8.6	10	12	16.7	100
LTV7.5AD	LTV7.5CD	7D5	7.5	8.33	9.21	1	12.9	15.5	50
LTV8.0AD	LTV8.0CD	8D	8	8.89	9.83	1	13.6	14.7	25
LTV8.5AD	LTV8.5CD	8D5	8.5	9.44	10.4	1	14.4	13.9	10
LTV9.0AD	LTV9.0CD	9D	9	10	11.1	1	15.4	13.0	5
LTV10AD	LTV10CD	10D	10	11.1	12.3	1	17	11.8	2.5
LTV11AD	LTV11CD	11D	11	12.2	13.5	1	18.2	11.0	2.5
LTV12AD	LTV12CD	12D	12	13.3	14.7	1	19.9	10.1	2.5
LTV13AD	LTV13CD	13D	13	14.4	15.9	1	21.5	9.3	1
LTV14AD	LTV14CD	14D	14	15.6	17.2	1	23.2	8.6	1
LTV15AD	LTV15CD	15D	15	16.7	18.5	1	24.4	8.2	1
LTV16AD	LTV16CD	16D	16	17.8	19.7	1	26	7.7	1
LTV17AD	LTV17CD	17D	17	18.9	20.9	1	27.6	7.2	1
LTV18AD	LTV18CD	18D	18	20	22.1	1	29.2	6.8	1
LTV20AD	LTV20CD	20D	20	22.2	24.5	1	32.4	6.2	1
LTV22AD	LTV22CD	22D	22	24.4	26.9	1	35.5	5.6	1
LTV24AD	LTV24CD	24D	24	26.7	29.5	1	38.9	5.1	1
LTV26AD	LTV26CD	26D	26	28.9	31.9	1	42.1	4.8	1
LTV28AD	LTV28CD	28D	28	31.1	34.4	1	45.4	4.4	1
LTV30AD	LTV30CD	30D	30	33.3	36.8	1	48.4	4.1	1
LTV33AD	LTV33CD	33D	33	36.7	40.6	1	53.3	3.8	1
LTV36AD	LTV36CD	36D	36	40	44.2	1	58.1	3.4	1
LTV40AD	LTV40CD	40D	40	44.4	49.1	1	64.5	3.1	1
LTV43AD	LTV43CD	43D	43	47.8	52.8	1	69.4	2.9	1
LTV45AD	LTV45CD	45D	45	50	55.3	1	72.7	2.8	1
LTV48AD	LTV48CD	48D	48	53.3	58.9	1	77.4	2.6	1
LTV51AD	LTV51CD	51D	51	56.7	62.7	1	82.4	2.4	1
LTV54AD	LTV54CD	54D	54	60	66.3	1	87.1	2.3	1
LTV58AD	LTV58CD	58D	58	64.4	71.2	1	93.6	2.1	1
LTV60AD	LTV60CD	60D	60	66.7	73.7	1	96.8	1.8	1
LTV64AD	LTV64CD	64D	64	71.1	78.6	1	103	1.7	1
LTV70AD	LTV70CD	70D	70	77.8	86	1	113	1.5	1
LTV75AD	LTV75CD	75D	75	83.3	92.1	1	121	1.4	1
LTV78AD	LTV78CD	78D	78	86.7	95.8	1	126	1.4	1
LTV85AD	LTV85CD	85D	85	94.4	104	1	137	1.3	1
LTV90AD	LTV90CD	90D	90	100	111	1	146	1.2	1
LTV100AD	LTV100CD	100D	100	111	123	1	162	1.1	1
LTV110AD	LTV110CD	110D	110	122	135	1	177	1.0	1
LTV120AD	LTV120CD	120D	120	133	147	1	193	0.9	1
LTV130AD	LTV130CD	130D	130	144	159	1	209	0.8	1
LTV150AD	LTV150CD	150D	150	167	185	1	243	0.7	1
LTV160AD	LTV160CD	160D	160	178	197	1	259	0.7	1
LTV170AD	LTV170CD	170D	170	189	209	1	275	0.6	1
LTV180AD	LTV180CD	180D	180	201	222	1	292	0.5	1
LTV200AD	LTV200CD	200D	200	224	247	1	324	0.5	1
LTV220AD	LTV220CD	220D	220	246	272	1	356	0.5	1



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

Fig.1 Peak Pulse Power Rating Curve

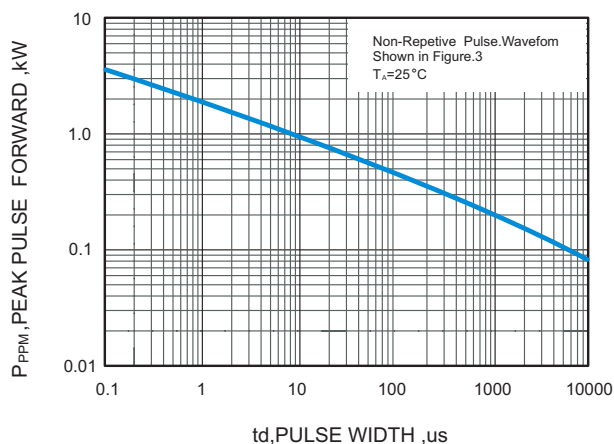


Fig.2 Forward Current Derating Curve

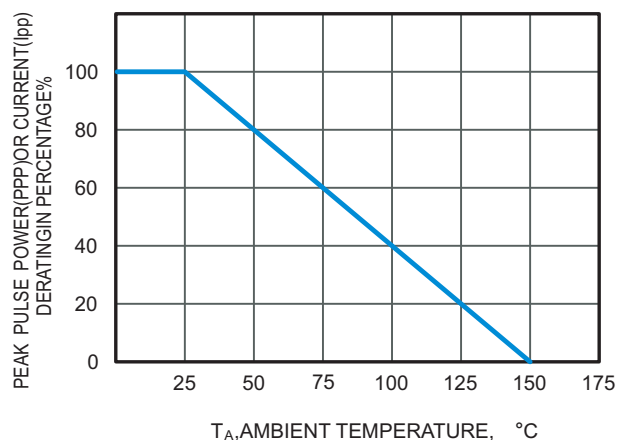


Fig.3 Pulse Waveform

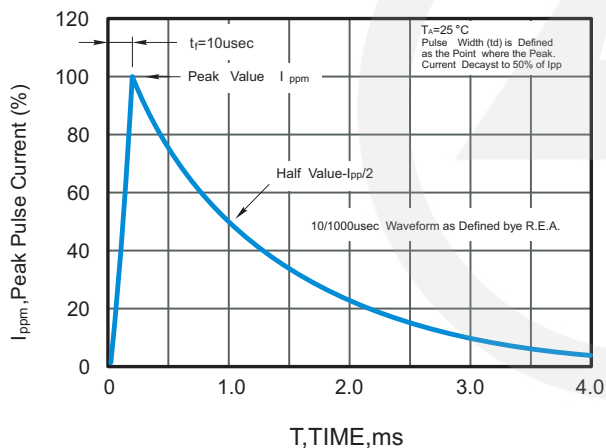
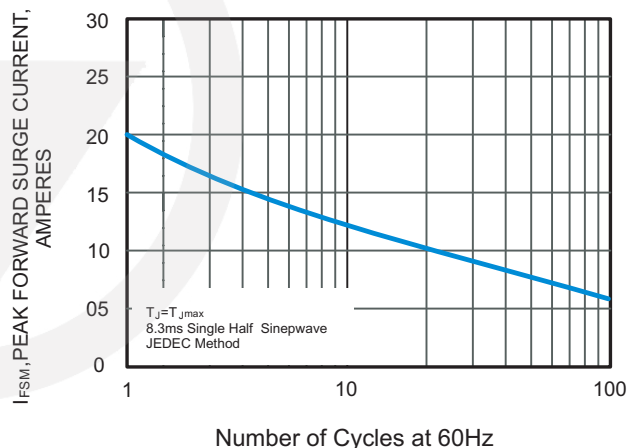


Fig.4 Maximum Non-Repetitive Peak Forward Surge Current

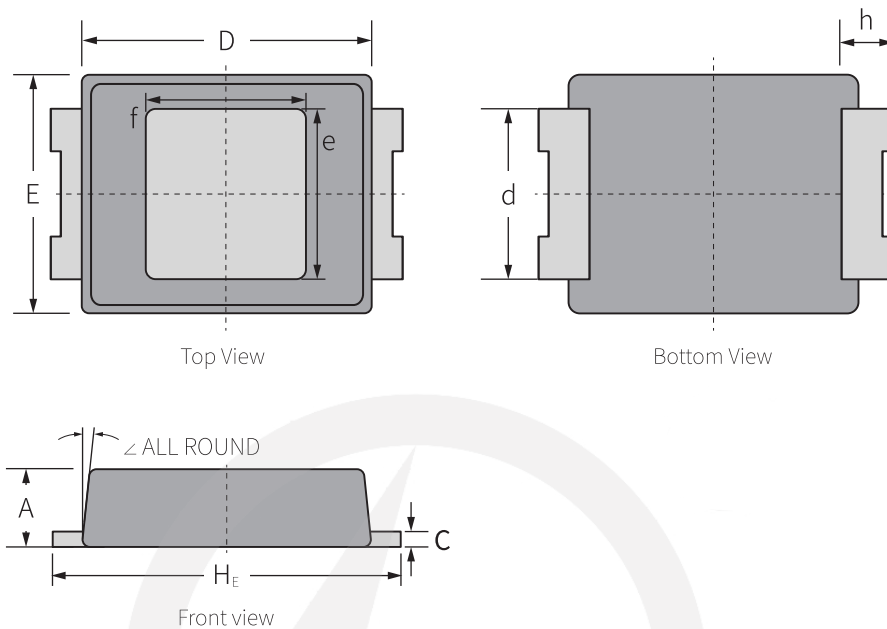




Package Outline

SMHS

Unit : mm

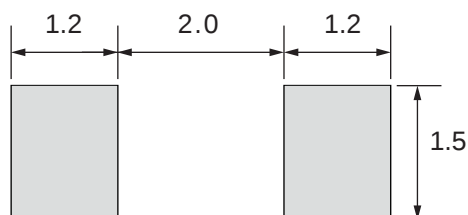


UNIT		A	C	D	E	H _E	d	e	f	h	∠
mm	max	0.99	0.25	2.90	2.10	3.50	1.30	1.30	1.25	0.70	6°
	min	0.83	0.15	2.50	1.70	2.90	1.10	1.10	1.05	0.50	

Suggested Pad Layout

SMHS

Unit : mm

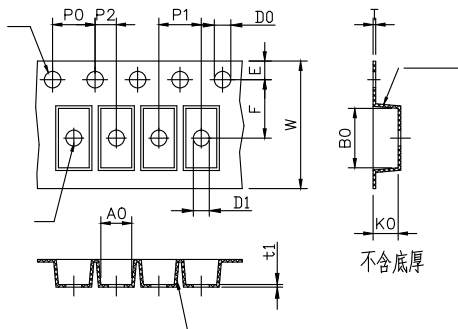


Note:

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

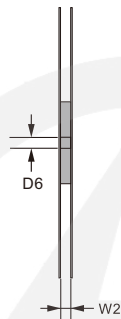
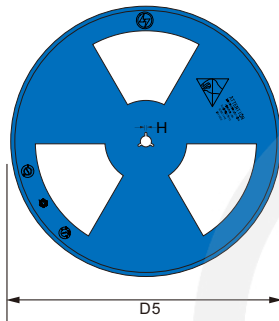


Symbol	Spec	Symbol	Spec
W	8.00±0.10	P2	2.00±0.10
E	1.75±0.10	t	0.22±0.02
F	3.50±0.10	t1	0.05±
D0	1.55±0.10	A0	2.15±0.10
D1	1.10±0.10	B0	3.40±0.10
P0	4.00±0.10	K0	1.15±0.10
P1	4.00±0.10		

Reel Dimensions

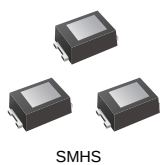
Unit : mm

13" Reel

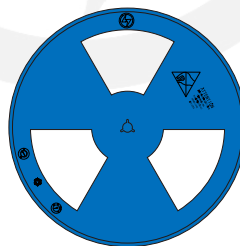


D5	Φ330.0±5.0
D6	Φ13.5±0.5
H	2.5±1.0
W2	8.0±2.0
Quantity: 15000PCS	

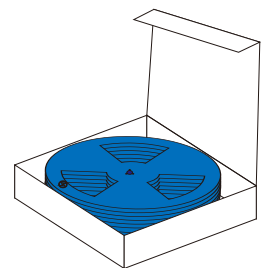
Packaging



15000 PCS/Reel



5 Reel/Inner Box
75K PCS/Inner Box



Dim(Unit:mm)
340mm*340mm*85mm

Dim(Unit:mm)
360mm*360mm*355mm

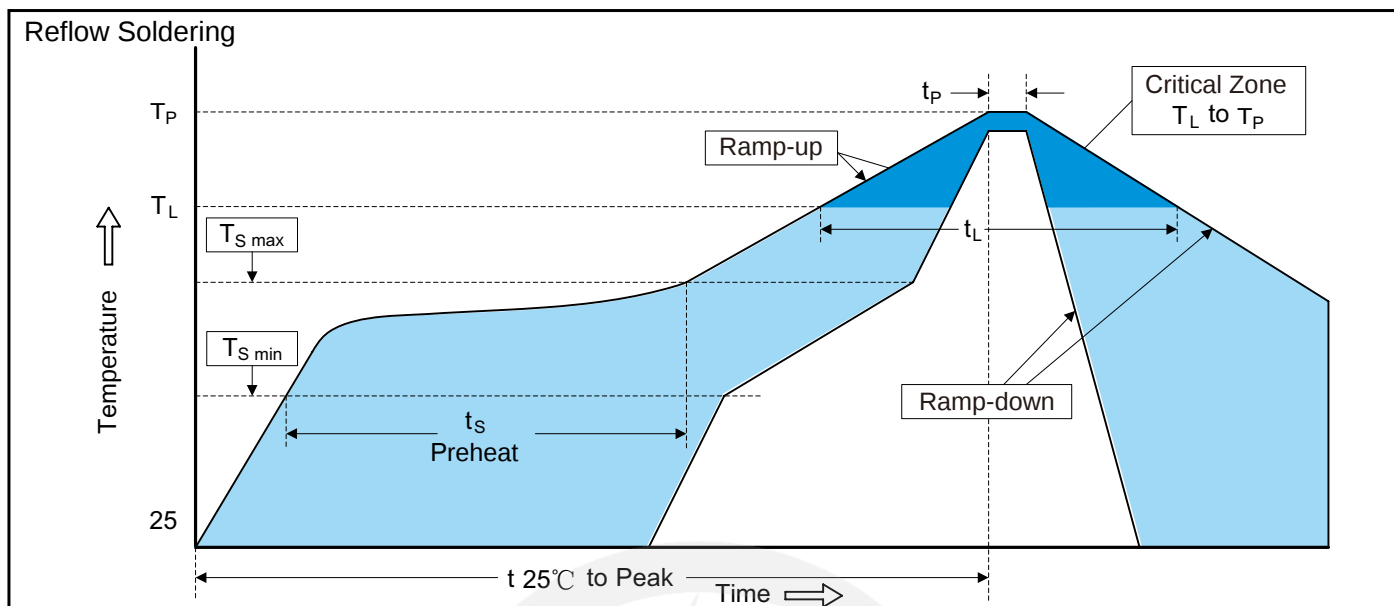


4 Boxes per carton
300K PCS per carton

13 inches Reel



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, nor 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 purchased 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	2025.05.06	2025.05.06	1.0	New file	/	Ding	