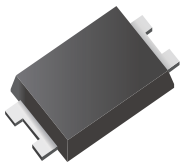
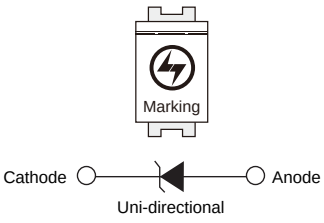
LTVxxA(C)G Series

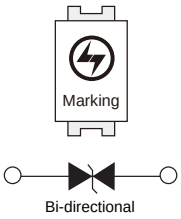
Transient Voltage Suppressors (TVS) Data Sheet

Features



- 400W peak pulse power capability at 10/1000μs 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 1μA 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
- Lead free in comply with EU RoHS 2011/65/EU directives





Mechanical Data

- Case: PDFN3620
- Terminal:Leads 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)G	See the Table	12000PCS Tape&Reel	13 inchs

Maximum Ratings and Characteristics

Ratings at 25℃ ambient temperature unless otherwise specified.

Rating	Symbol	Value	Unit
Peak pulse power dissipation at 10/1000μs waveform (Note1, Note2, Fig.1)	P_{PPM}	Minimum 400	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)	$P_{M(AV)}$	3.3	W
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load, (JEDEC Method) (Note3, Fig.6)	I_{FSM}	40	A
Operating junction and Storage Temperature Range.	T_J,T_{STG}	-55 to +150	℃
Typical thermal resistance junction to lead	$R_{\theta JL}$	30	℃/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	120	℃/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)
				Min	Max				
LTV5.0AG	LTV5.0CG	5G	5.0	6.40	7.00	10	9.2	43.5	500
LTV6.0AG	LTV6.0CG	6G	6.0	6.67	7.37	10	10.3	38.8	500
LTV6.5AG	LTV6.5CG	6G5	6.5	7.22	7.98	10	11.2	35.7	300
LTV7.0AG	LTV7.0CG	7G	7.0	7.78	8.60	10	12.0	33.3	200
LTV7.5AG	LTV7.5CG	7G5	7.5	8.33	9.21	1	12.9	31.0	100
LTV8.0AG	LTV8.0CG	8G	8.0	8.89	9.83	1	13.6	29.4	50
LTV8.5AG	LTV8.5CG	8G5	8.5	9.44	10.40	1	14.4	27.8	20
LTV9.0AG	LTV9.0CG	9G	9.0	10.0	11.10	1	15.4	26.0	10
LTV10AG	LTV10CG	10G	10.0	11.10	12.30	1	17.0	23.5	5
LTV11AG	LTV11CG	11G	11.0	12.20	13.50	1	18.2	22.0	1
LTV12AG	LTV12CG	12G	12.0	13.30	14.70	1	19.9	20.1	1
LTV13AG	LTV13CG	13G	13.0	14.40	15.90	1	21.5	18.6	1
LTV14AG	LTV14CG	14G	14.0	15.60	17.20	1	23.2	17.2	1
LTV15AG	LTV15CG	15G	15.0	16.70	18.50	1	24.4	16.4	1
LTV16AG	LTV16CG	16G	16.0	17.80	19.70	1	26.0	15.4	1
LTV17AG	LTV17CG	17G	17.0	18.90	20.90	1	27.6	14.5	1
LTV18AG	LTV18CG	18G	18.0	20.00	22.10	1	29.2	13.7	1
LTV20AG	LTV20CG	20G	20.0	22.20	24.50	1	32.4	12.3	1
LTV22AG	LTV22CG	22G	22.0	24.40	26.90	1	35.5	11.3	1
LTV24AG	LTV24CG	24G	24.0	26.70	29.50	1	38.9	10.3	1
LTV26AG	LTV26CG	26G	26.0	28.90	31.90	1	42.1	9.5	1
LTV28AG	LTV28CG	28G	28.0	31.10	34.40	1	45.4	8.8	1
LTV30AG	LTV30CG	30G	30.0	33.30	36.80	1	48.4	8.3	1
LTV33AG	LTV33CG	33G	33.0	36.70	40.60	1	53.3	7.5	1
LTV36AG	LTV36CG	36G	36.0	40.00	44.20	1	58.1	6.9	1
LTV40AG	LTV40CG	40G	40.0	44.40	49.10	1	64.5	6.2	1
LTV43AG	LTV43CG	43G	43.0	47.80	52.80	1	69.4	5.8	1
LTV45AG	LTV45CG	45G	45.0	50.00	55.30	1	72.7	5.5	1
LTV48AG	LTV48CG	48G	48.0	53.30	58.9	1	77.4	5.2	1
LTV51AG	LTV51CG	51G	51.0	56.70	62.70	1	82.4	4.9	1
LTV54AG	LTV54CG	54G	54.0	60.00	66.30	1	87.1	4.6	1
LTV58AG	LTV58CG	58G	58.0	64.40	71.20	1	93.6	4.3	1
LTV60AG	LTV60CG	60G	60.0	66.70	73.70	1	96.8	4.1	1
LTV64AG	LTV64CG	64G	64.0	71.10	78.60	1	103.0	3.9	1
LTV70AG	LTV70CG	70G	70.0	77.80	86.00	1	113.0	3.5	1
LTV75AG	LTV75CG	75G	75.0	83.30	92.10	1	121.0	3.3	1
LTV78AG	LTV78CG	78G	78.0	86.70	95.80	1	126.0	3.2	1
LTV85AG	LTV85CG	85G	85.0	94.40	104.00	1	137.0	2.9	1
LTV90AG	LTV90CG	90G	90.0	100.00	111.00	1	146.0	2.7	1
LTV100AG	LTV100CG	100G	100.0	111.00	123.00	1	162.0	2.5	1
LTV110AG	LTV110CG	110G	110.0	122.00	135.00	1	177.0	2.3	1
LTV120AG	LTV120CG	120G	120.0	133.00	147.00	1	193.0	2.1	1
LTV130AG	LTV130CG	130G	130.0	144.00	159.00	1	209.0	1.9	1
LTV150AG	LTV150CG	150G	150.0	167.00	185.00	1	243.0	1.6	1

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

Characteristics Curves (T_A=25°C unless otherwise noted)

FIG.1 PEAK PULSE POWER RATING CURVE

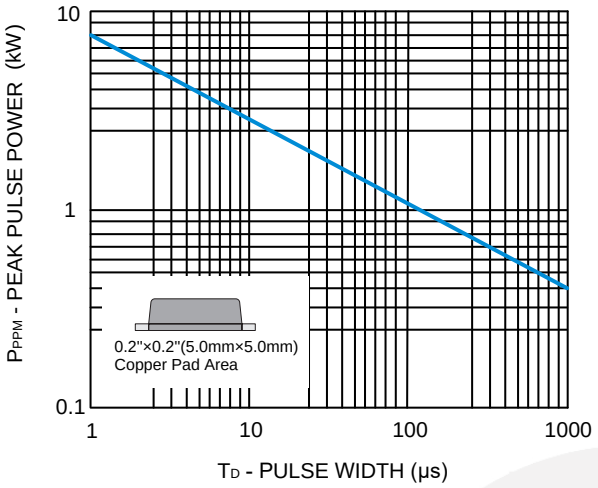


FIG.2 PULSE DERATING CURVE

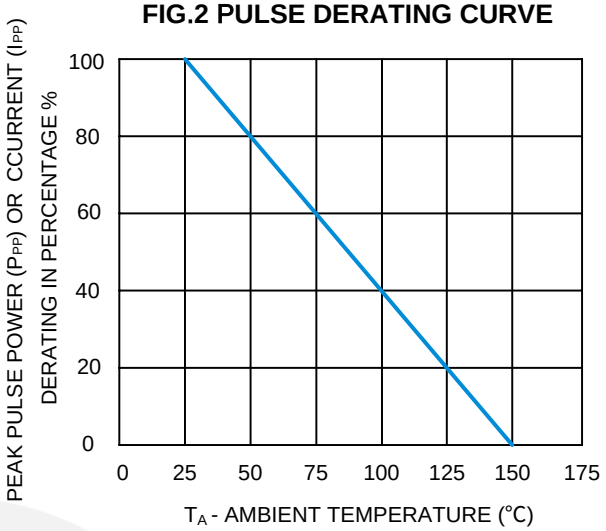


FIG.3 PULSE WAVEFORM

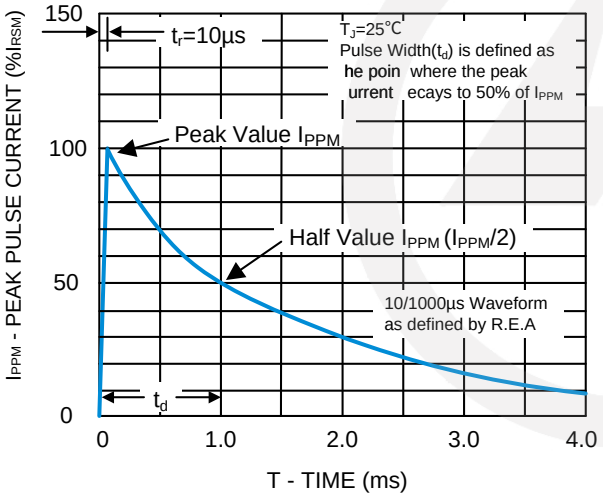


FIG.4 TYPICAL JUNCTION CAPACITANCE

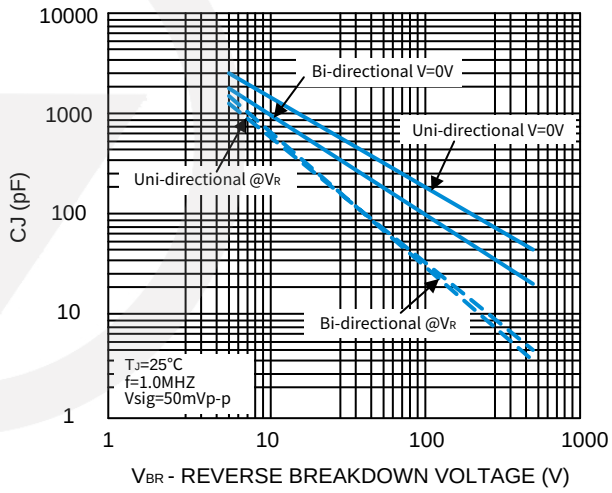


FIG.5 STEADY STATE POWER DISSIPATION DERATING CURVE

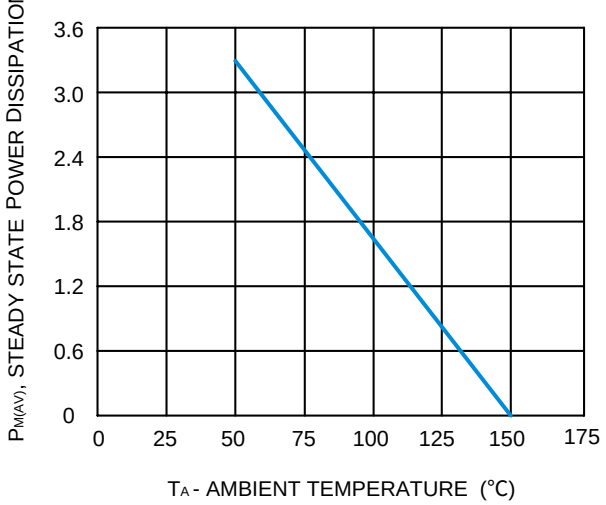
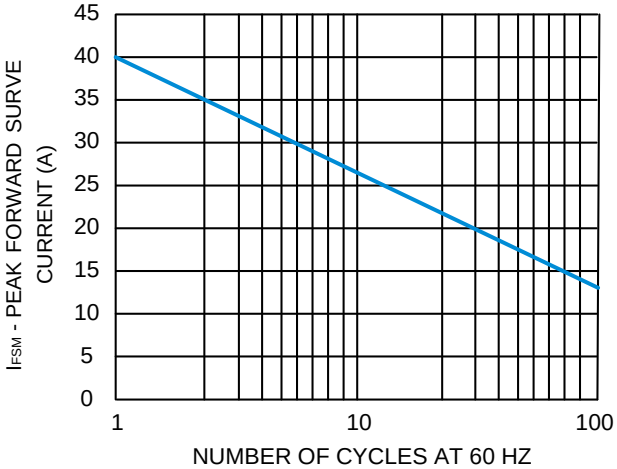


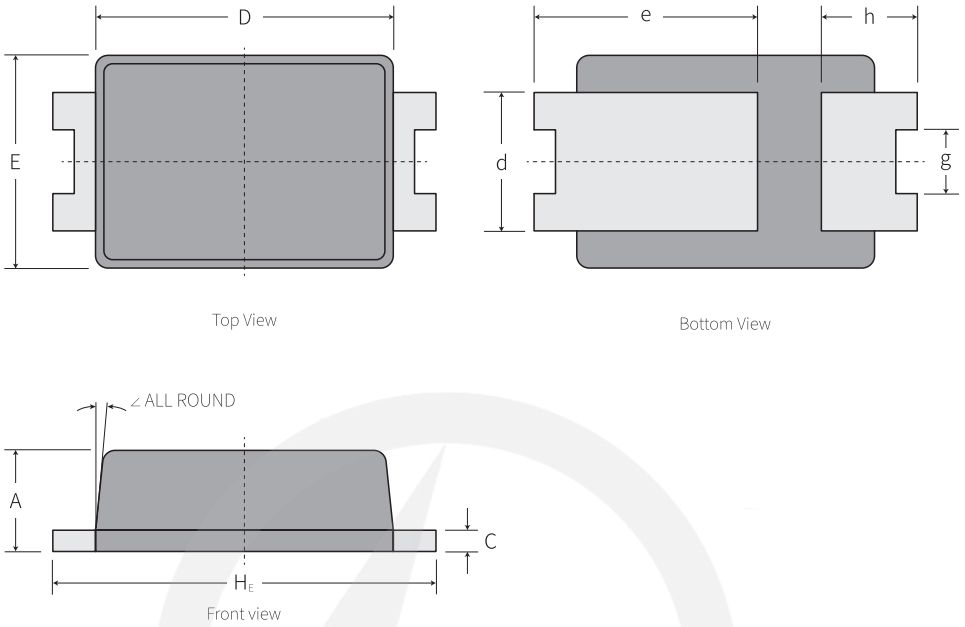
FIG.6 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNI-DIRECTIONAL ONLY



Package Outline

PDFN3620

Unit：mm

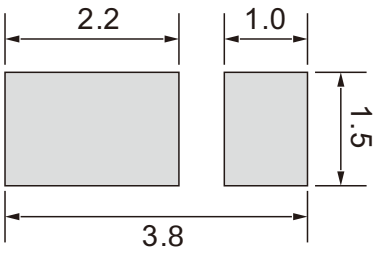


UNIT		A	C	D	E	H_E	d	e	g	h	∠
mm	max	1.15	0.30	3.00	2.20	3.80	1.50	2.30	0.80	1.10	6°
	min	0.75	0.10	2.60	1.80	3.40	1.10	1.70	0.40	0.70	

Suggested Pad Layout

PDFN3620

Unit：mm

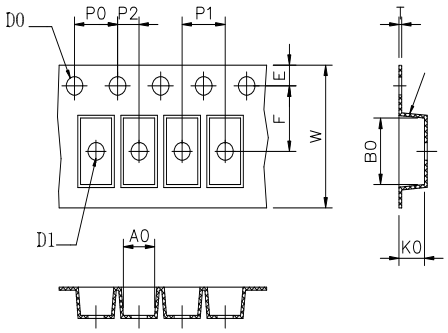


Note:

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

Carrier Tape Dimensions

Unit：mm

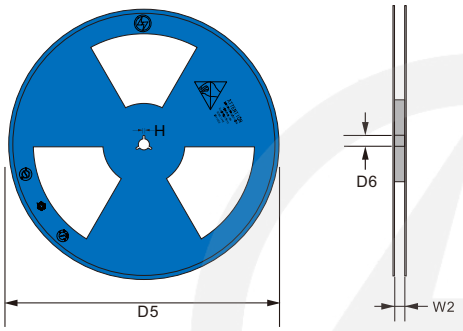


Symbol	Spec	Symbol	Spec
W	8.00±0.10	P1	4.00±0.10
E	1.75±0.10	P2	2.00±0.05
F	3.50±0.05	T	0.22±0.02
D0	1.55±0.05	A0	2.30±0.10
D1	1.50±0.10	B0	3.90±0.10
P0	4.00±0.10	K0	1.15±0.05

Reel Dimensions

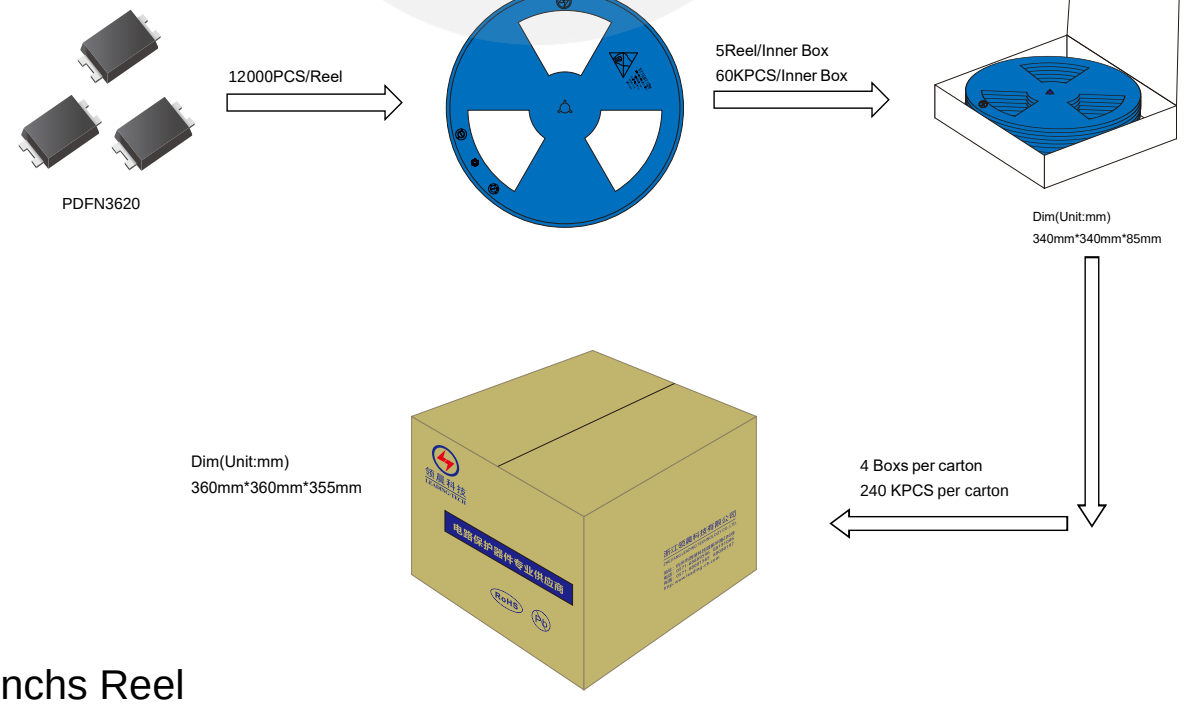
Unit：mm

13” Reel



D5	Φ330.0±2.0
D6	Φ13.5±0.5
H	2.5±1.0
W2	12±2.0
Quantity: 12000PCS	

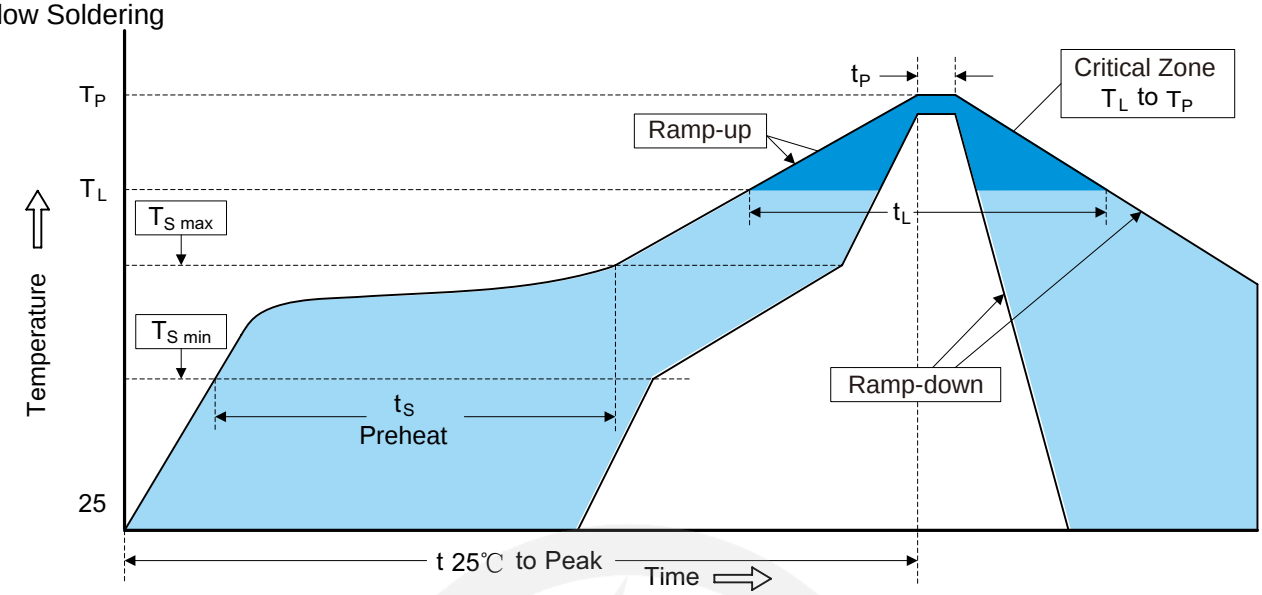
Packaging



13 inchs Reel

Recommended Soldering Conditons

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 Iformation

Series NO.	Enactment/Revision Date	Effective Date	Version	Revision content	Revision Reason	Revision Person	Note
01	2024.03.01	2024.03.01	1.0	New File	/	Ding	