

LL24BT1006A-H

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80W Ultra Low Capacitance Bi-Directional TVS For ESD Protection : 24V

Features

- Ultra low capacitance : 0.3pF(Typ.) .
- Low clamping voltage.
- Complies with following standards:
IEC 61000-4-2 (ESD) $\pm 15\text{kV}$ (Air), $\pm 8\text{kV}$ (Contact).
IEC 61000-4-5 (Lightning) 1.5A (8/20 μs).
- Lead-free parts meet RoHS requirements.
- Halogen-free (IEC61249-2-21) .

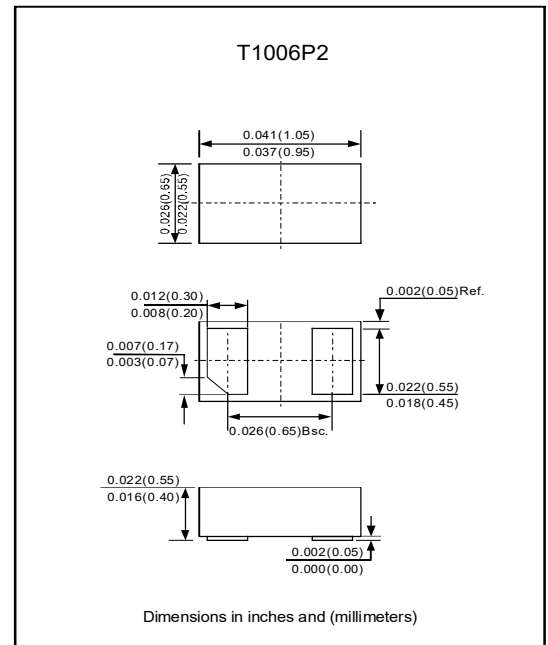
Applications

- Cellular handsets and accessories .
- Display ports, MDDI ports, and USB ports.
- Digital visual interface (DVI).
- PCI express and serial SATA ports.

Mechanical data

- Epoxy : UL94V-0 rated flame retardant.
- Case : Molded plastic, T1006P2.
- Weight : Approximated 0.8mg.

Package outline



Maximum ratings (At $T_A=25^\circ\text{C}$ unless otherwise noted)

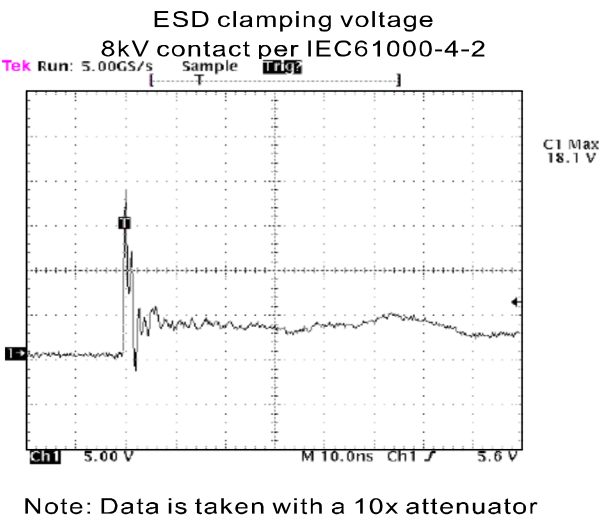
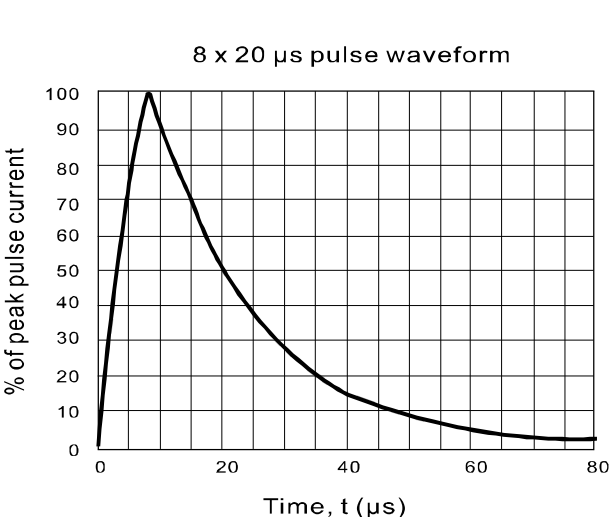
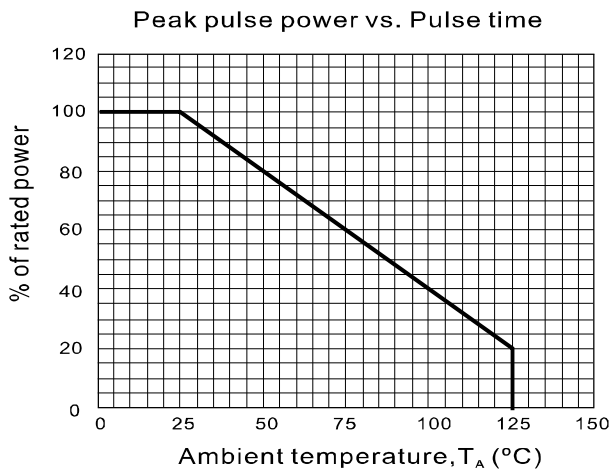
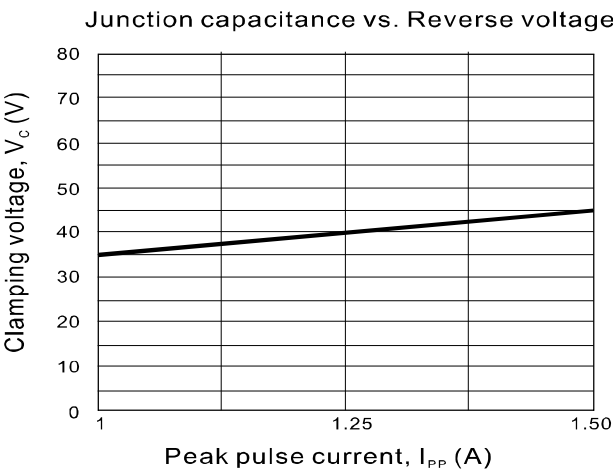
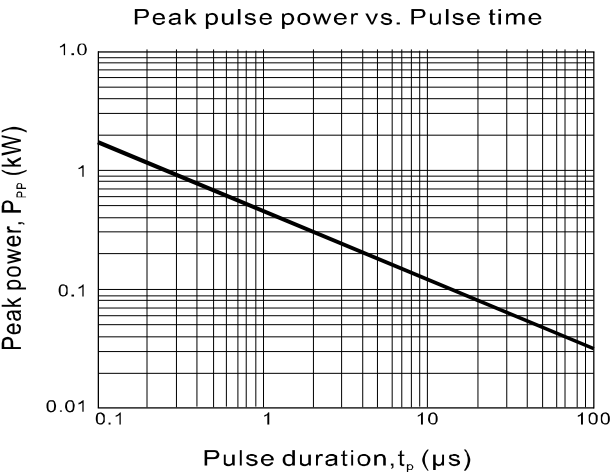
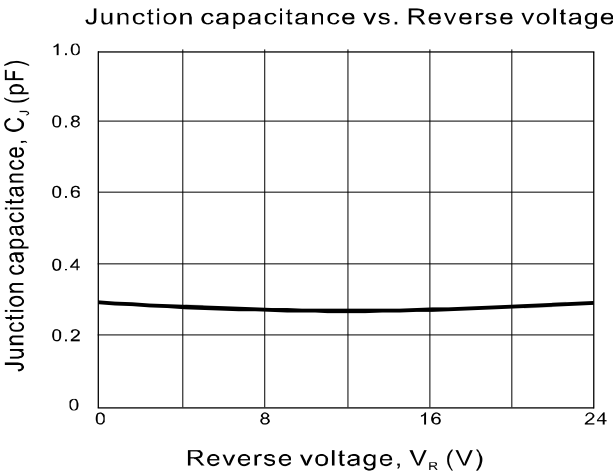
Parameter	Symbol	Ratings	Units
Peak pulse power (8/20 μs)	P_{PK}	80	W
Peak pulse current (8/20 μs)	I_{PP}	1.5	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 15	KV
ESD per IEC 61000-4-2 (Contact)		± 8	
Operating temperature	T_J	+125	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^\circ\text{C}$

Electrical characteristics (At $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Reverse stand-off voltage		V_{RWM}			24	V
Breakdown voltage	$I_T=1\text{mA}$	V_{BR}	26.5			V
Reverse leakage current	$V_{RWM}=24\text{V}$	I_R			0.5	μA
Clamping voltage	$I_{PP}=1.0\text{A}$, 8x20 μs pulse	V_C			40	V
	$I_{PP}=1.5\text{A}$, 8x20 μs pulse				53	
Junction capacitance	$V_R=0\text{V}$, $f=1.0\text{MHz}$	C_J		0.3		pF

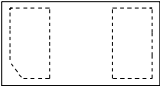
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Rating and characteristic curves



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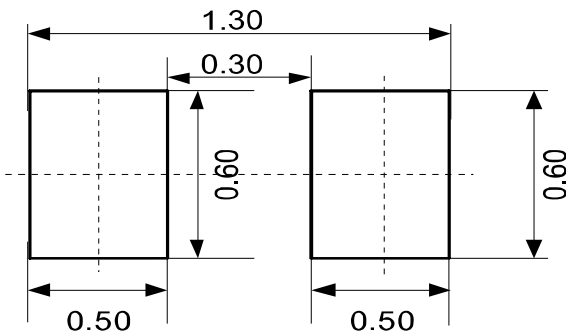
Pinning information

Pin	Simplified outline	Symbol
Bi-directional	 Top view  Bottom view	

Marking

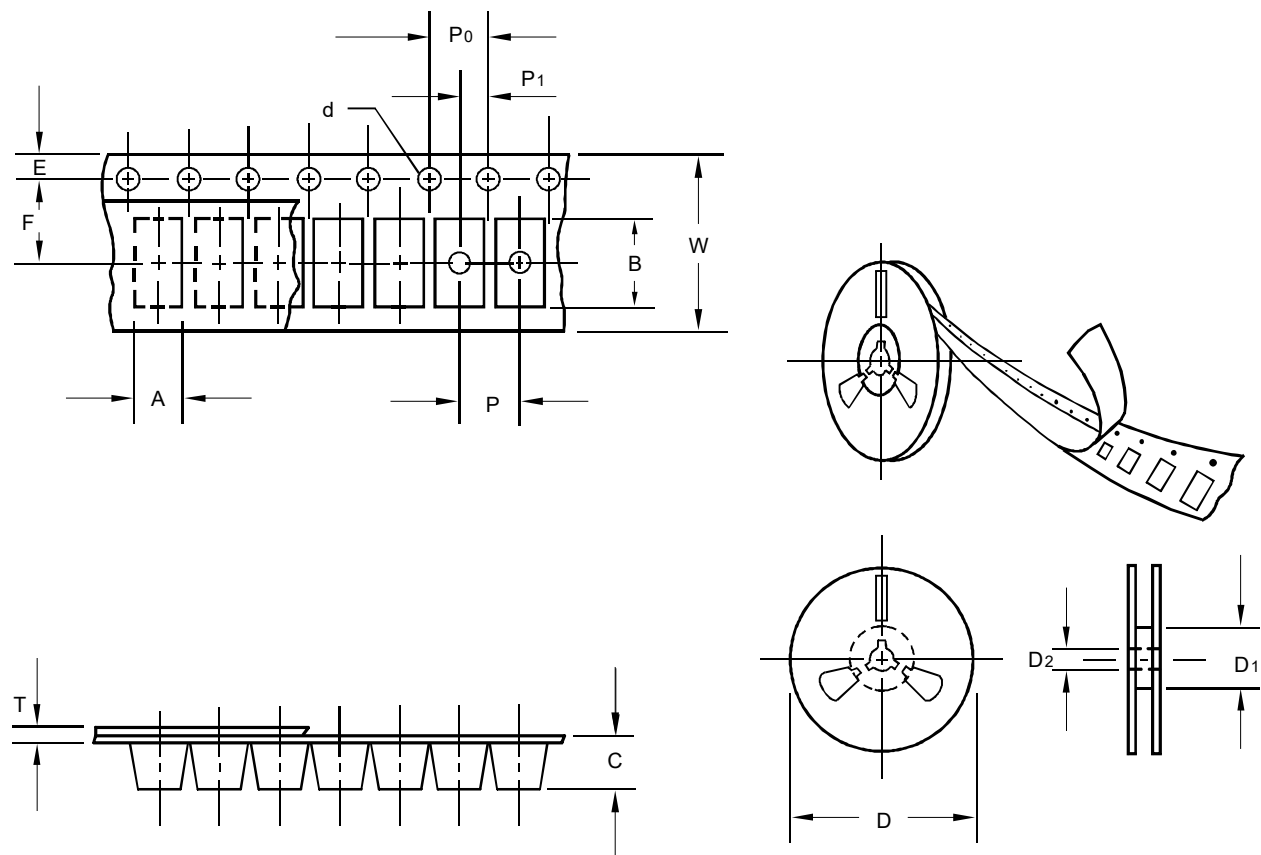
Type number	Marking code
LL24BT1006A-H	R24

Suggested solder pad layout



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Packing information



unit:mm

Item	Symbol	Tolerance	T1006P2
Carrier width	A	0.5	0.27
Carrier length	B	0.5	0.50
Carrier depth	C	0.5	0.17
Sprocket hole	d	0.5	1.50
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D1	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D1	min	55.00
Feed hole diameter	D2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.5	0.20
Tape width	W	0.5	8.00

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

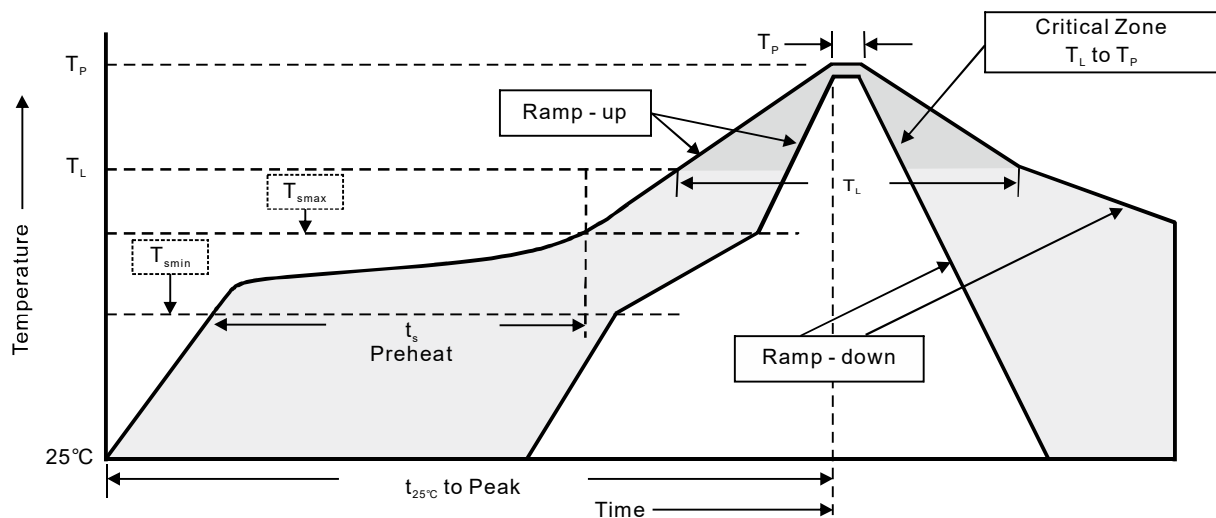
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Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)
T1006P2	7"	10,000	4.0	100,000	183*123*183	178	382*257*387	800,000

Suggested thermal profiles for soldering processes

- Storage environment : Temperature = 5°C ~ 40°C, Humidity = 55%, ±25%.
- Reflow soldering of surface - Mount devices.



3. Reflow soldering

Profile feature	Soldering condition
Average ramp-up rate (T_L to T_P)	< 3 °C/sec
Preheat - Temperature Min (T_{smin}) - Temperature Max (T_{smax}) - Time (Min to Max) (t_s)	150°C 200°C 60 ~ 120 sec
T_{smax} to T_L - Ramp-up rate	< 3 °C / sec
Time maintained above : - Temperature (T_L) - Time (T_L)	217°C 60 ~ 260 sec
Peak temperature (T_P)	255 °C -0 / +5°C
Time with 5°C of actual peak temperature (T_P)	10 ~ 30 sec
Ramp-down rate	< 6°C / sec
Time 25°C to peak temperature	< 6 minutes