LL24BT1006

List

LL24BT1006

28W Surface Mount TVS Bi-Directional For ESD Protection - 24V

Features

- Small body outline dimensions.
- Protects one I/O or power line.
- Low leakage current.
- Low capacitance : 0.5pF (Typical).
- Provide transient protection:
  IEC 61000-4-2 (ESD) ±15KV(Air), ±15KV(Contact).
  IEC 61000-4-4 (EFT) 40A (5/50ns).
  IEC 61000-4-5 (Lightning) 4A (8/20μs).
- We declare that the material of product compliance with RoHS requirements.
- Suffix "-H" indicates Halogen-free parts, ex.LL24BT1006-H

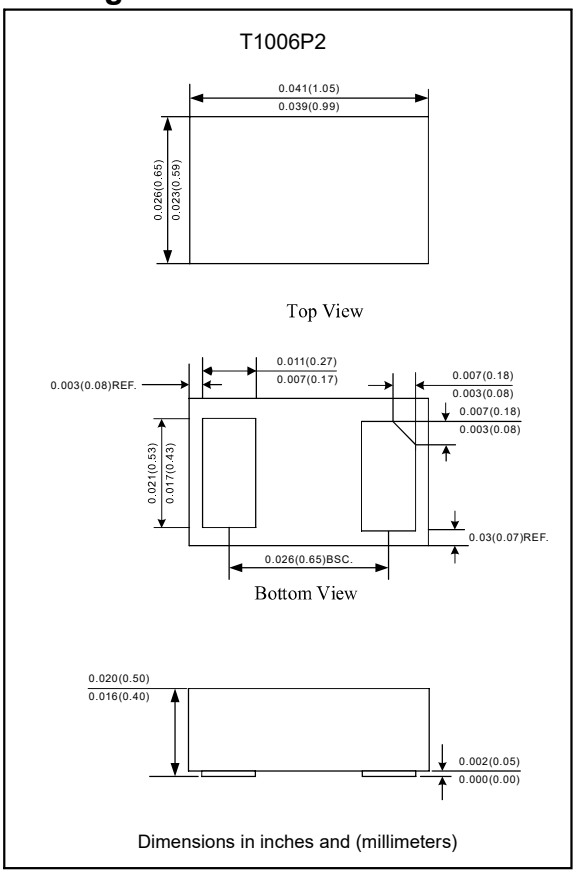
Applications

- Cellular Handsets & Accesories.
- Personal digital assistants (PDAs).
- Notebooks & Handholds.
- Portable instrumentation.
- Digital cameras.

Mechanical data

- T1006P2 package
- Molding compound flammability rating : UL94V-0
- Packaging : Tape and reel per EIA 481
- RoHS Compliant
- Weight : Approximated 0.73 mg

Package outline



Maximum ratings (at T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse power (tp=8/20μs)	P_{PP}	28	W
Peak pulse current (tp=8/20μs)	I_{PP}	4	A
ESD per IEC 61000-4-2 (Contact)	V_{ESD}	±15	KV
ESD per IEC 61000-4-2 (Air)		±15	
Operating temperature	T_{OPT}	+125	℃
Storage temperature	T_{STG}	-55 to +150	℃

LL24BT1006

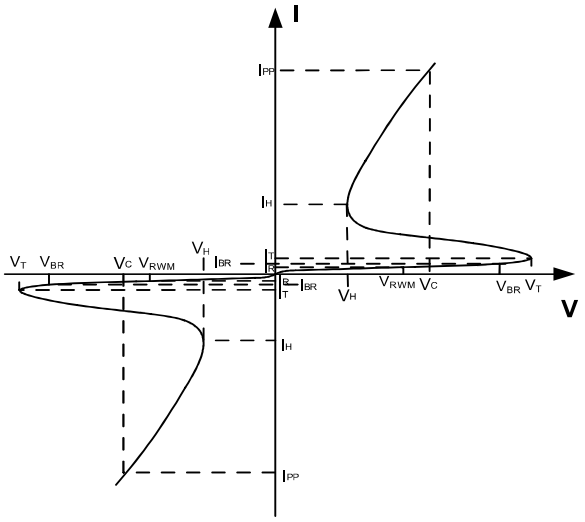
Electrical characteristics (at T_J=25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Reverse stand-off voltage		V_{RWM}			24	V
Reverse breakdown voltage	I_T=1mA	V_{BR}	27			V
Reverse leakage current	V_{RWM}=24V	I_R			500	nA
Holding current		I_H		50		mA
Clamping voltage	I_{PP}=4A, t_p=8/20μs	V_C		5	7	V
ESD Clamping voltage (Note 1)	I_{PP}=4A, t_p=0.2/100ns (TLP)	V_C		4.4		V
ESD Clamping voltage (Note 1)	I_{PP}=16A, t_p=0.2/100ns (TLP)	V_C		7.9		V
Dynamic resistance (Note 1, 2)	TLP=0.2/100ns	R_{DYN}		0.29		Ω
Junction capacitance	V_R=0V, f=1MHz	C_J		0.5	0.7	pF

Note : 1. TLP Setting : t_p=100ns, t_r=0.2ns, I_{TLP} and V_{TLP} sample window : t_1=70ns to t_2=90ns.
2. Dynamic resistance calculated from I_{PP}=4A to I_{PP}=16A using "Best fit ".

Electrical parameters

Symbol	Parameter
I_{PP}	Reverse Peak Pulse Current
V_C	Clamping Voltage
V_{RWM}	Reverse Stand-Off Voltage
I_{BR}	Reverse Breakdown Current
I_R	Reverse Leakage Current
V_{BR}	Reverse Breakdown Voltage
V_T	Reverse Trigger Voltage
I_T	Reverse Trigger Current
V_H	Reverse Holding Voltage
I_H	Reverse Holding current



LL24BT1006

Rating and characteristic curves

Figure 1: Peak Pulse Power vs. Pulse Time

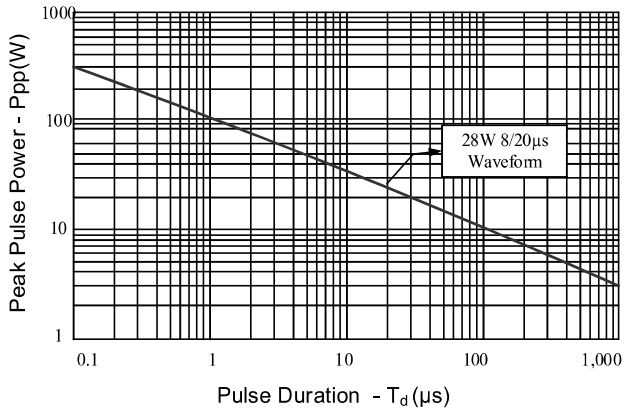


Figure 2: Power Derating Curve

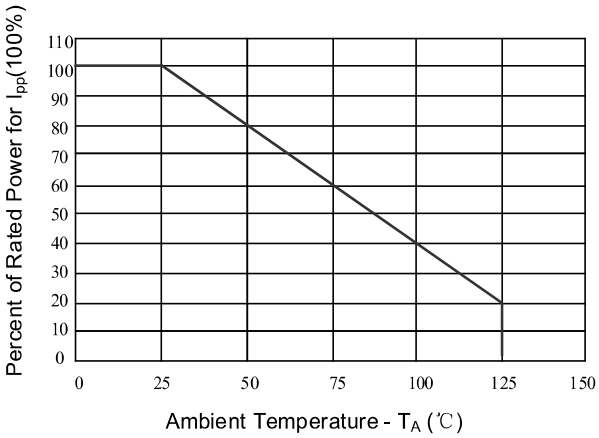


Figure 3: Clamping Voltage vs. Peak Pulse Current

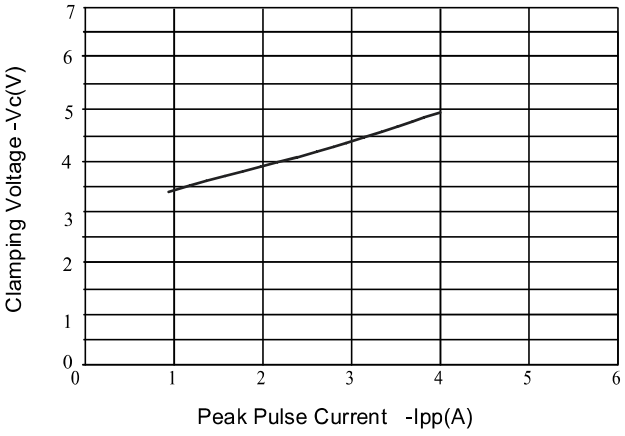


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

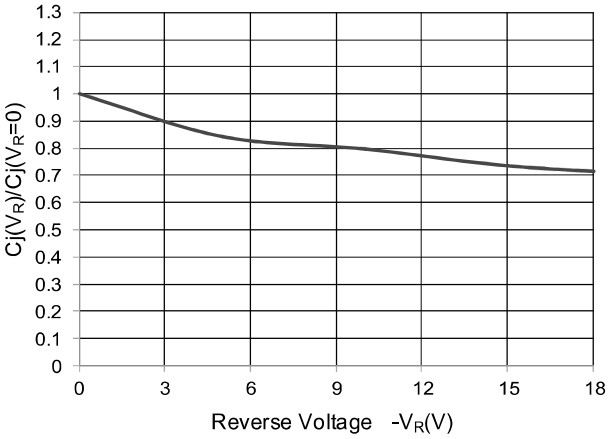


Figure 5: TLP Positive I-V Curve

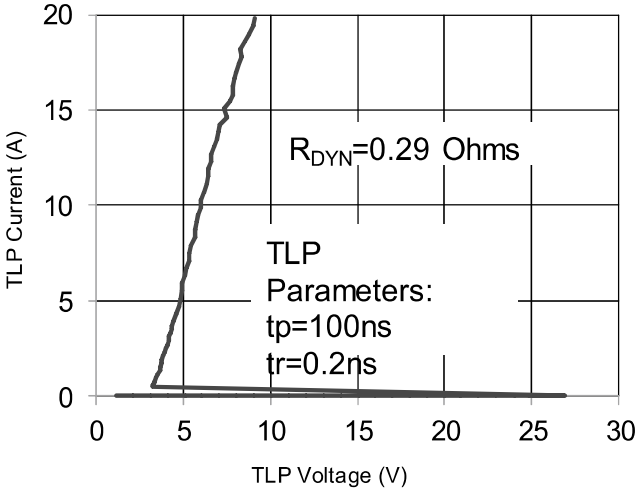
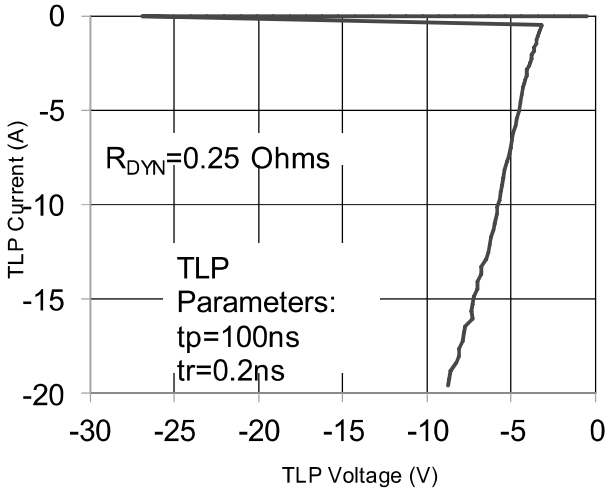
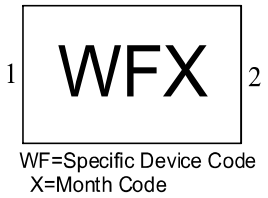
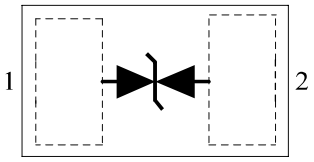


Figure 6: TLP Negative I-V Curve

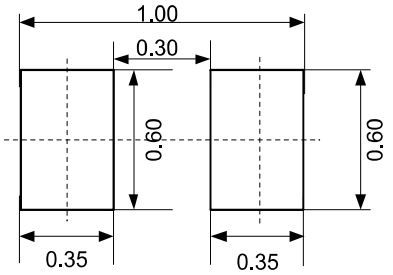


LL24BT1006

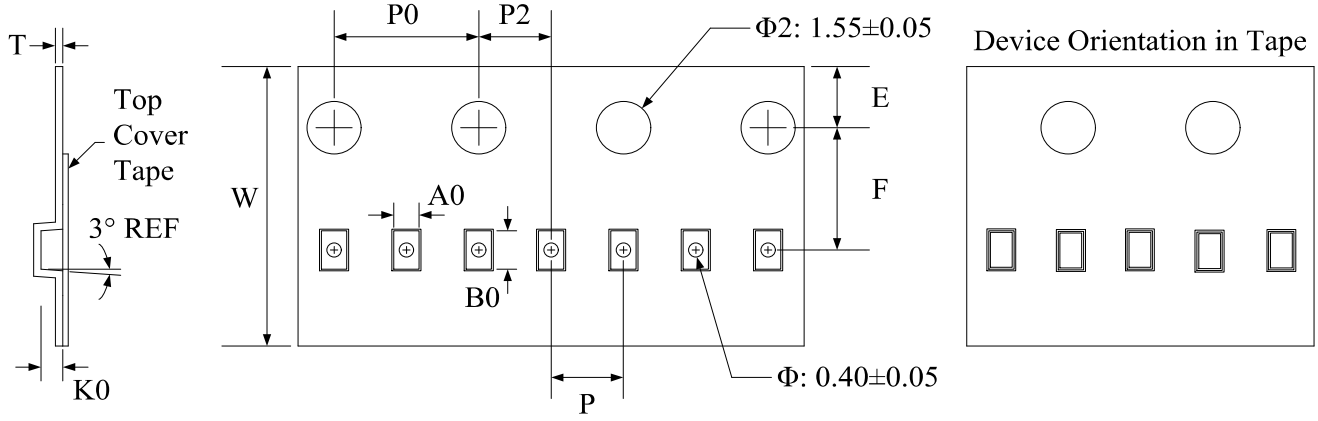
Pinning & Marking information

Marking Code	Symbol
	

Suggested solder pad layout



Packing information



Symbol	W	A0	B0	K0	E	F	P	P0	P2	T
Dimensions (mm)	8.00±0.1	0.7±0.05	1.15±0.05	0.55±0.05	1.75±0.1	3.5±0.05	2.0±0.1	4.0±0.1	2.0±0.05	0.2±0.05

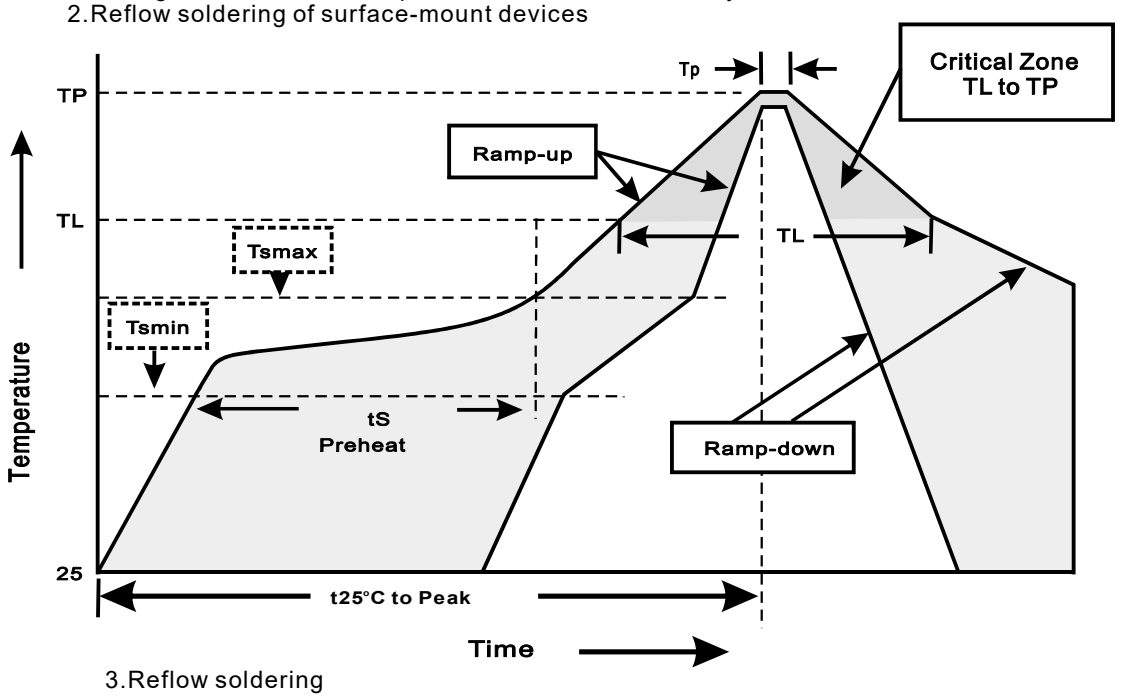
LL24BT1006

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)	APPROX. GROSS WEIGHT (kg)
T1006P2	7"	10,000	4.0	100,000	183*123*183	178	382*257*387	800,000	15.0

Suggested thermal profiles for soldering processes

1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
2.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(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(t_s)	 150°C 200°C 60~120sec
Tsmax to T_L -Ramp-upRate	 <3°C/sec
Time maintained above: -Temperature(T_L) -Time(t_L)	 217°C 60~260sec
Peak Temperature(T_P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t_P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes