

L12BT1006A

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100W Low Capacitance Bi-Directional TVS For ESD Protection 12V

Features

- Provide transient protection :
IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (Air), $\pm 30\text{kV}$ (Contact).
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates halogen-free part, ex.L12BT1006A-H.

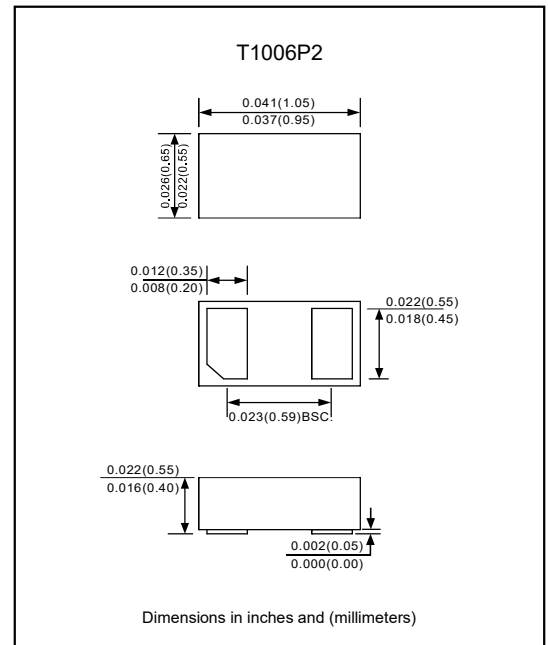
Applications

- Smartphones and table computers.
- Blu-ray and DVD recorders and players.
- Video equipment and accessories.

Mechanical data

- Epoxy: UL94V-0 rated flame retardant.
- Case : Molded plastic, T1006P2.

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}	100	W
ESD per IEC 61000-4-2 (Contact)	V_{ESD}	± 30	KV
ESD per IEC 61000-4-2 (Air)		± 30	
Operating temperature	T_J	+150	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^\circ\text{C}$

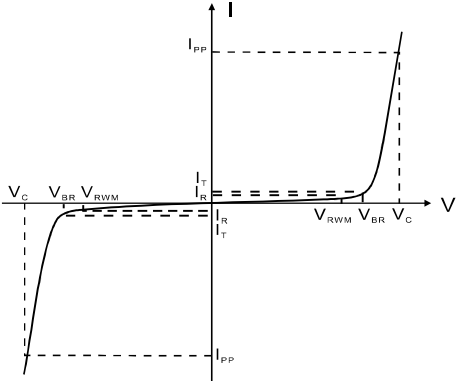
Electrical characteristics (At $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Reverse working voltage		V_{RWM}			12	V
Breakdown voltage	$I_T=1\text{mA}$	V_{BR}	13.3		16	V
Reverse leakage current	$V_{RWM}=12\text{V}$	I_R			100	nA
Clamping voltage	$I_{PP}=1\text{A}$, $t_p=8/20\mu\text{s}$	V_C		9	13	V
	$I_{PP}=4\text{A}$, $t_p=8/20\mu\text{s}$			22	24	
Junction capacitance	$V_R=0\text{V}$, $f=1.0\text{MHz}$	C_J		4.25	4.75	pF

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Rating and characteristic curves

Symbol	Parameter
V_{RWM}	Nominal reverse working voltage
I_R	Reverse leakage current@ V_{RWM}
V_{BR}	Reverse breakdown voltage@ I_T
I_T	Test current for reverse breakdown
V_C	Clamping voltage @ I_{PP}
I_{PP}	Maximum peak pulse current
P_{PK}	Peak power dissipation
C	Maximum capacitance @ $V_R=0$, $f=1\text{MHz}$



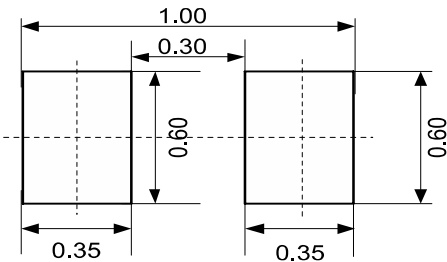
Pinning information

Pin	Simplified outline	Symbol
Bi-directional	Top view Bottom view	

Marking

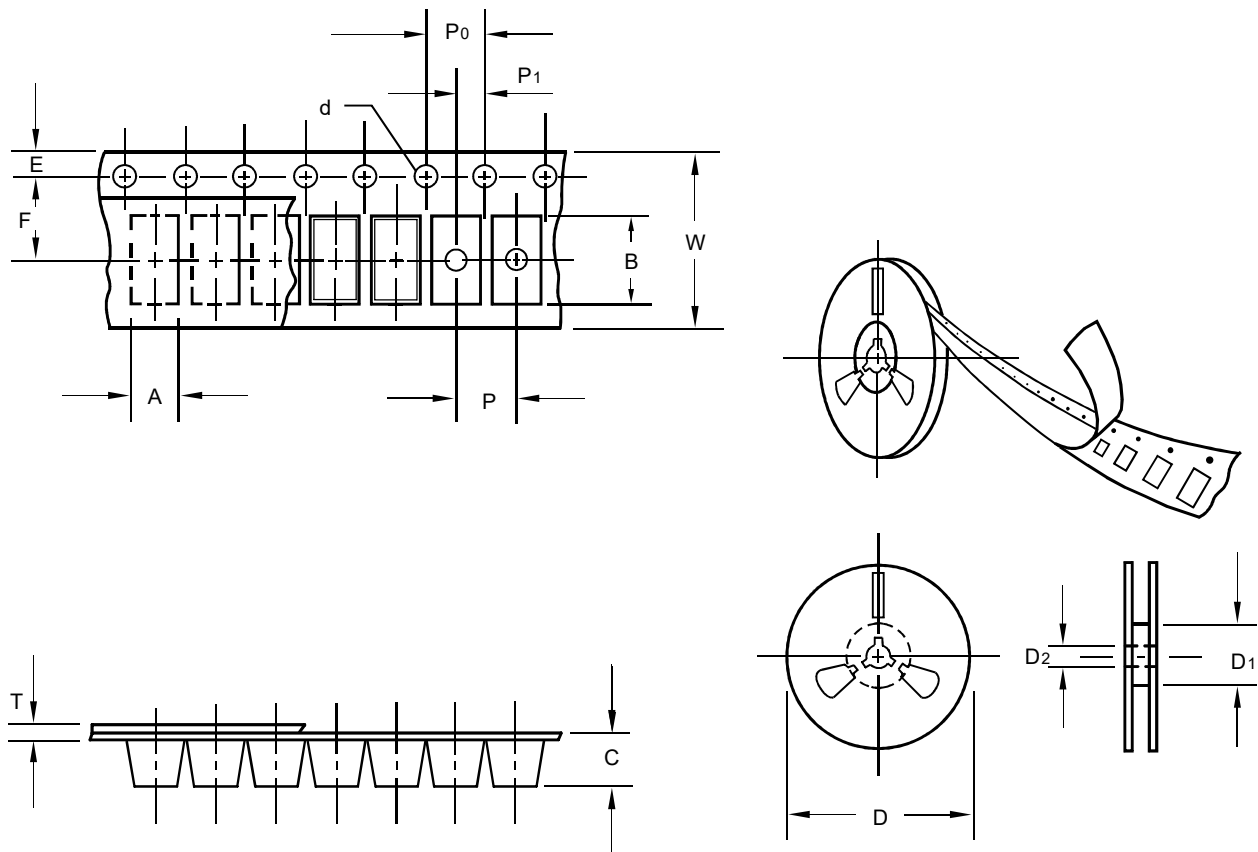
Type number	Marking code
L12BT1006A	2C

Suggested solder pad layout



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Packing information



unit:mm

Item	Symbol	Tolerance	T1006P2
Carrier width	A	0.1	0.27
Carrier length	B	0.1	0.50
Carrier depth	C	0.1	0.17
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D ₁	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D ₁	min	55.00
Feed hole diameter	D ₂	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	2.00
Sprocket hole pitch	P ₀	0.1	4.00
Embossment center	P ₁	0.1	2.00
Overall tape thickness	T	0.1	0.20
Tape width	W	0.3	8.00

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

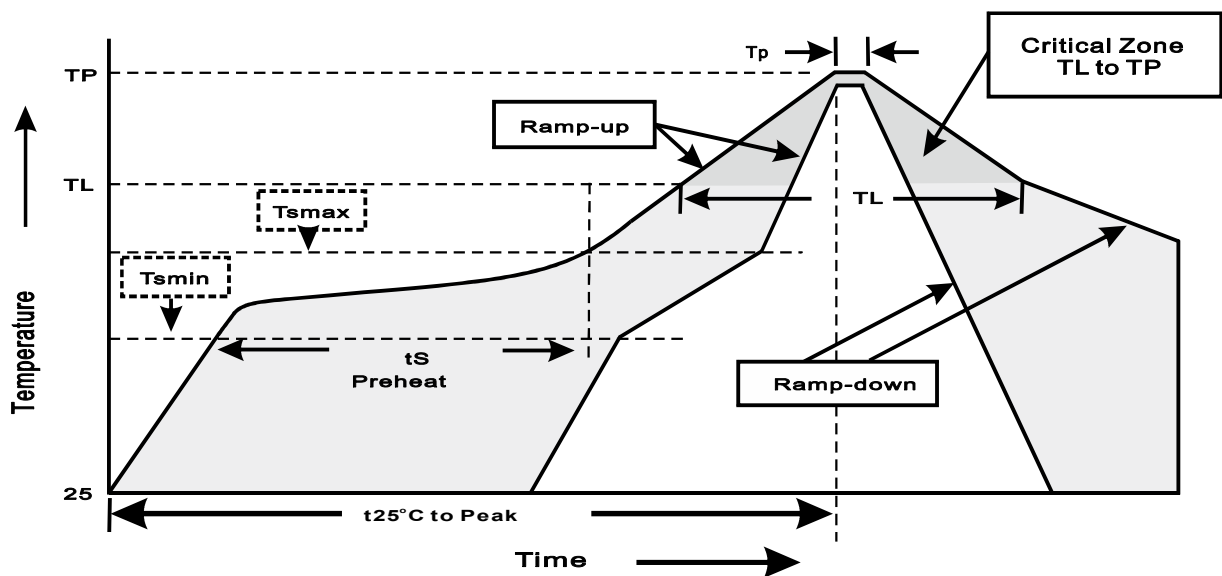
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Reel packing

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

- 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(T _{smin}) -Temperature Max(T _{smax}) -Time(min to max)(t _s)	150°C 200°C 60~120sec
T _{smax} 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