

N24BT1006

List

List.....	1
Package outline.....	2
Features.....	2
Mechanical data.....	2
Maximum ratings	2
Electrical characteristics.....	2
Rating and characteristic curves.....	3
Electrical Parameters.....	4
Pinning information.....	4
Suggested solder pad layout.....	4
Paking information.....	5
Reel packing.....	6
Suggested thermal profiles for soldering processes.....	6

N24BT1006

138W Surface Mount TVS Bi-Directional ESD Protection - 24V

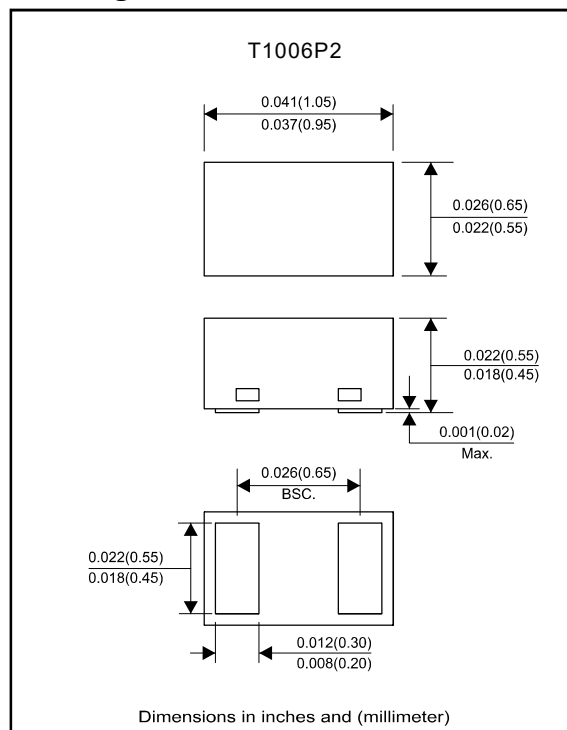
Features

- Bi-directional ESD protection.
- IEC61000-4-2 (ESD) : $\pm 30\text{KV}$ (Contact).
- Surface mount package.
- Ultra small SMD package : T1006P2.
- High component density.
- Suffix "-H" indicates Halogen-free parts, ex.N24BT1006-H

Mechanical data

- Case T1006P2 Standard package, molded plastic.
- Terminalis : Gold plated, solder able per MIL-STD-750, Method 2026.
- Mounting position : Any.
- Weight : 0.001grams (Approx).

Package outline



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

Parameter	Symbol	Value	Unit
Peak pulse power ($t_p=8/20\mu\text{s}$)	P_{PP}	138	W
Electrostatic discharge voltage (IEC61000-4-2 Contact & Air)	V_{ESD}	± 30	KV
Peak pulse current ($t_p=8/20\mu\text{s}$, IEC61000-4-5)	I_{PP}	3	A
Operating temperature	T_J	+125	$^\circ\text{C}$
Storage temperature	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	29	32	V
Reverse leakage current	$V_{RWM}=24\text{V}$	I_R			100	nA
Clamping voltage	$I_{PP}=1\text{A}$, $t_p=8/20\mu\text{s}$	V_C		32	36	V
	$I_{PP}=3\text{A}$, $t_p=8/20\mu\text{s}$			38	46	
Junction capacitance	$V_R=0\text{V}$, $f=1\text{MHz}$	C_j		13	20	pF

Rating and characteristic curves(N24BT1006)

Fig.1 - 8/20 μ s Peak Pulse Current
Wave Form ACC. IEC 61000-4-5

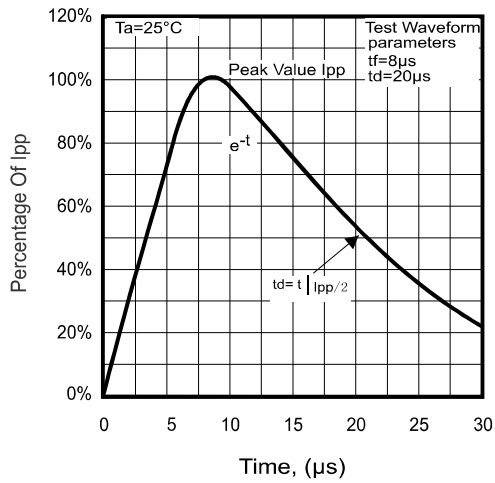


Fig.2 - Power rating derating curve

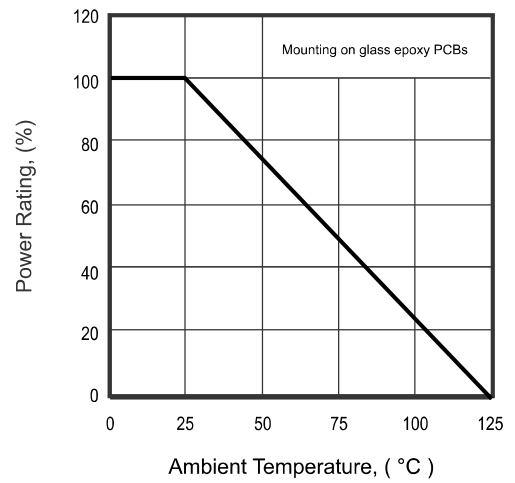


Fig. 3 - Clamping Voltage Vs.
Peak Pulse Current

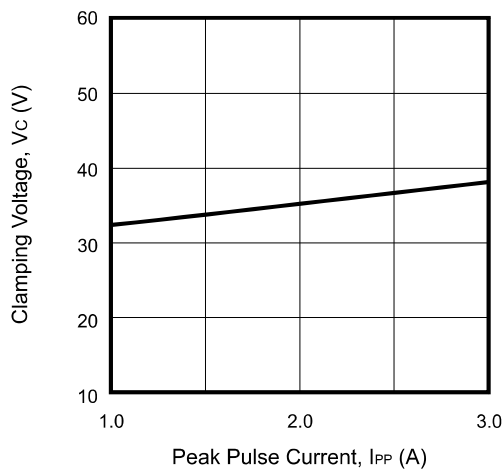
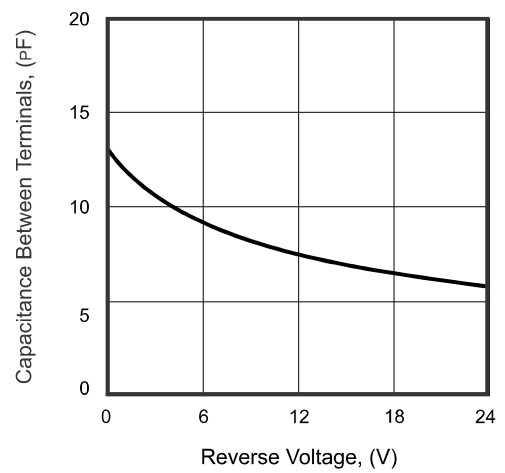


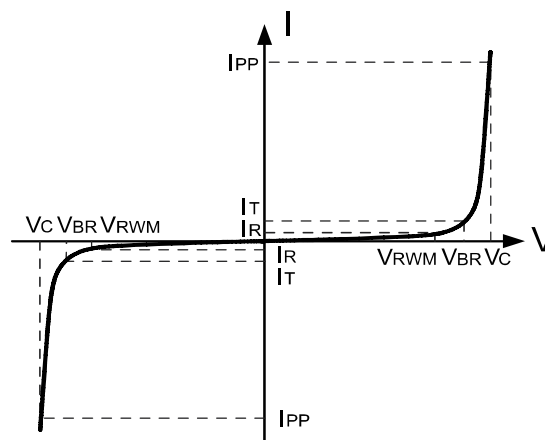
Fig.4 - Capacitance Between
Terminals Characteristics



N24BT1006

Electrical Parameters ($T_A=25^{\circ}\text{C}$)

Symbol	Parameter
I_{PP}	Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Reverse Stand-Off Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_R
I_T	Test Current

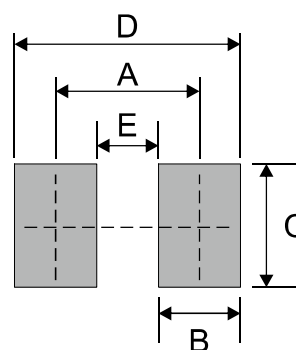


Pinning information

Marking Code	Symbol
E4	

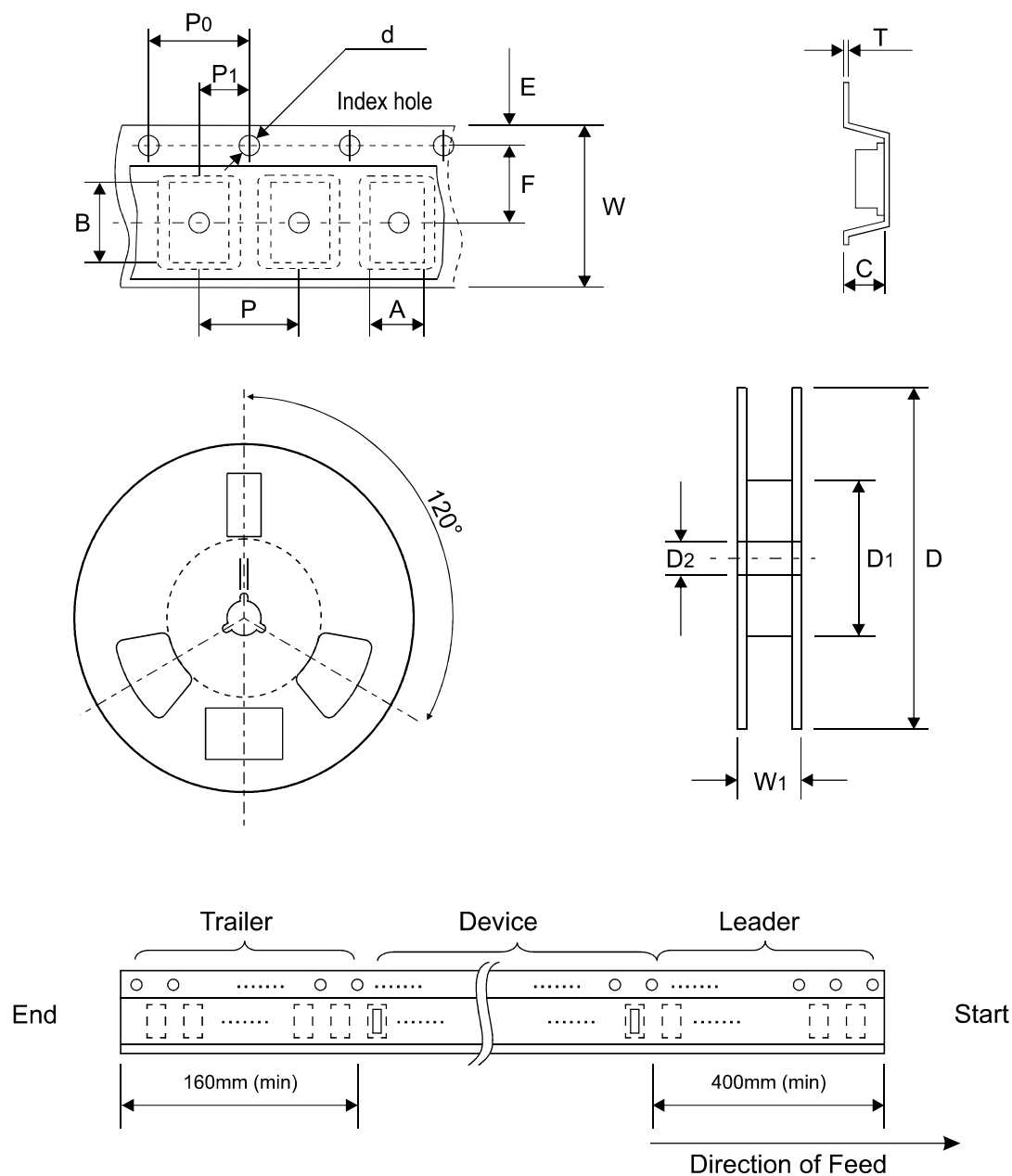
Suggested solder pad layout

SIZE	T1006P2	
	(mm)	(inch)
A	0.70	0.028
B	0.40	0.016
C	0.60	0.024
D	1.10	0.043
E	0.30	0.012



N24BT1006

Packing information



T1006P2	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	0.75 ± 0.05	1.17 ± 0.05	0.65 ± 0.05	$1.50 + 0.10$ $- 0.00$	178.00 ± 1.00	60.00 ± 0.50	13.50 ± 0.20
	(inch)	0.030 ± 0.002	0.046 ± 0.002	0.026 ± 0.002	$0.059 + 0.004$ $- 0.000$	7.008 ± 0.039	2.362 ± 0.020	0.531 ± 0.008

T1006P2	SYMBOL	E	F	P	P ₀	P ₁	T	W	W ₁
	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	$0.20 + 0.02$ $- 0.05$	8.00 ± 0.20	$12.00 + 0.50$ $- 0.00$
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	$0.008 + 0.001$ $- 0.002$	0.315 ± 0.008	$0.472 + 0.020$ $- 0.000$

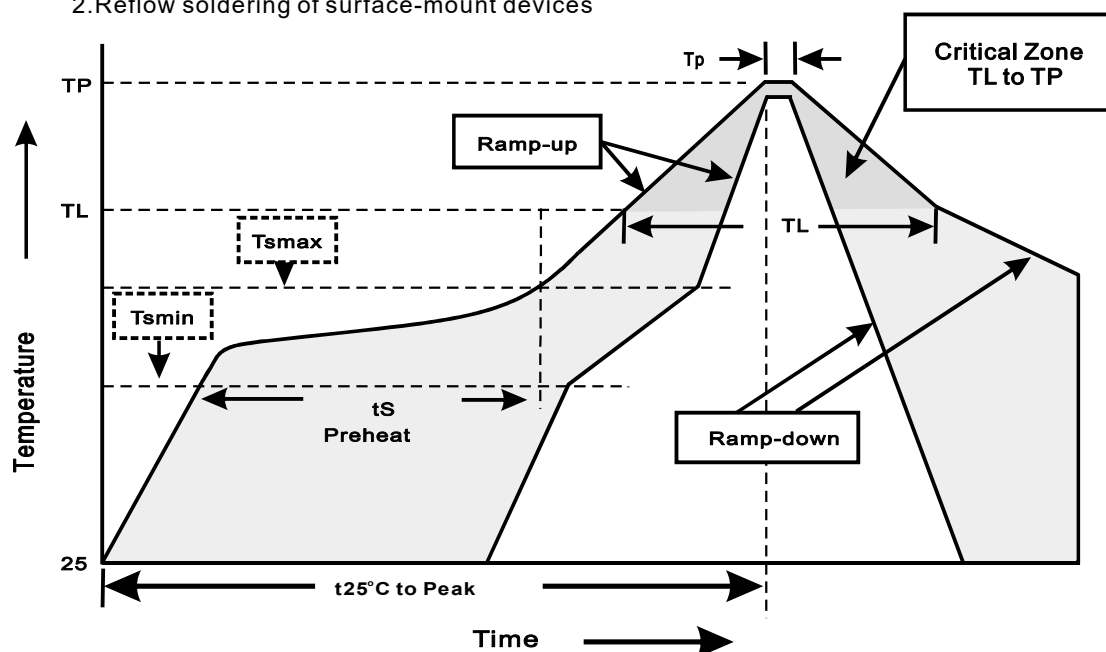
N24BT1006

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"	5,000	4.0	50,000	183*123*183	178	382*257*387	400,000	13.0

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(TL to TP)	<3°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(ts)	150°C 200°C 60~120sec
Tsmax to TL -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(TL) -Time(tL)	217°C 60~260sec
Peak Temperature(TP)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(tp)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes