

N08BT1006

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Surface Mount Bi-directional TVS For ESD Protection 8V

Features

- Bi-directional TVS
- Small body outline dimensions: 1.00mm x 0.60 mm (typ.)
- Low leakage current.
- Response time is typically < 1 ns
- Provide transient protection:
IEC 61000-4-2 (ESD) Contact $\pm 30\text{KV}$ /Air $\pm 30\text{KV}$
IEC 61000-4-4 (EFT) 40A (5/50ns)
IEC 61000-4-5 (Lightning) 10A (8/20us)
- We declare that the material of product compliance with RoHS requirements.
- Suffix "-H" indicates Halogen-free parts, ex.N08BT1006-H

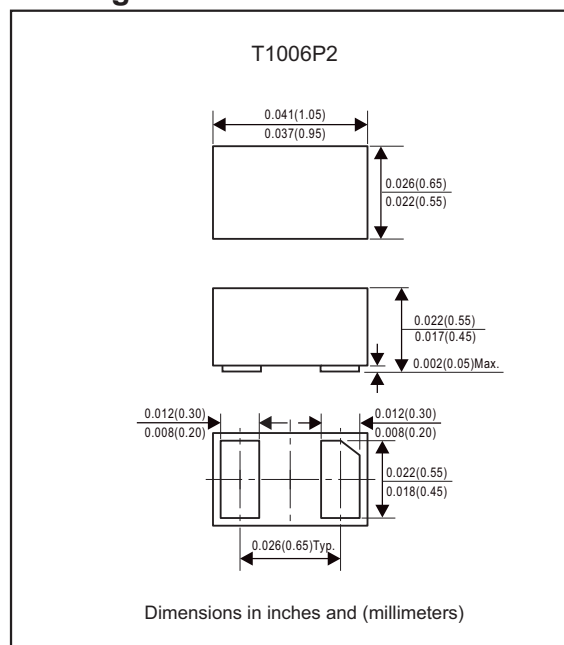
Applications

- Cellular handsets & Accessories
- Personal digital assistants
- Digital cameras
- Portable instrumentation
- Notebooks & Handhelds
- MP3 players

Mechanical data

- Case : Molded plastic, T1006P2
- Mounting Position : Any
- Weight : Approximated 0.73 mg

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_D	200	W
Peak Pulse Current ($t_p=8/20\mu\text{s}$)	I_{PP}	10	A
ESD per IEC 61000-4-2 (air) ESD per IEC 61000-4-2 (contact)	ESD	± 30	KV
Operating Junction Temperature	T_J	-55 to +125	$^\circ\text{C}$
Storage Temperature	T_{STD}	-55 to +150	$^\circ\text{C}$

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

Part No.	V_{RWM} (V) Max.	$I_R(\mu\text{A})$ @ V_{RWM} Max.	$V_{BR}(V)$ @ I_T (Note 1)		I_T (mA)	$V_C(V)$ @ $I_{PP}=10\text{A}$ $t_p=8/20\mu\text{s}$ (Note 2) Max.	$V_C(V)$ @ $I_{PP}=4\text{A}$ $t_p=0.2/100\text{ns}$ (Note 3) Typ.	$V_C(V)$ @ $I_{PP}=16\text{A}$ $t_p=0.2/100\text{ns}$ (Note 3) Typ.	$C_J(\text{pF})$ $V_R=0\text{V}, f=1\text{MHz}$	
			Typ.	Max.					Typ.	Max.
N08BT1006	8.0	0.5	8.5	12	1	21	12.5	18	30	34

Note:

- 1: V_{BR} is measured with a pulse test current I_T at an ambient temperature of 25°C
- 2: Surge current waveform per Figure 1.
- 3: TLP Setting: $t_p=100\text{ns}$, $t_r=0.2\text{ns}$, I_{TLP} an V_{TLP} sample window: $t_1=70\text{ns}$ to $t_2=90\text{ns}$.

Rating and characteristic curves(N08BT1006)

FIG.1 Non-Repetitive Peak Pulse Power vs. Pulse Time

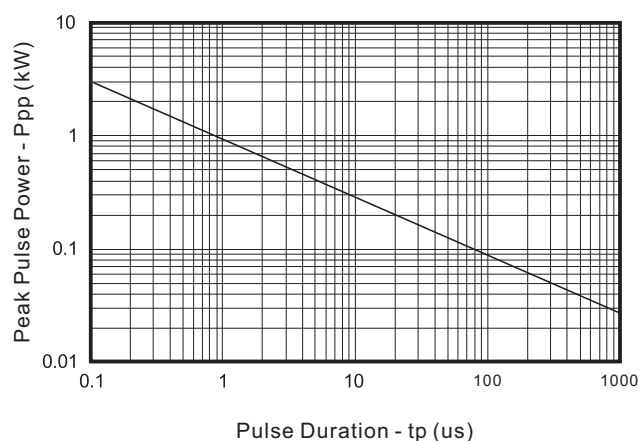


FIG.2 Power Derating Curve

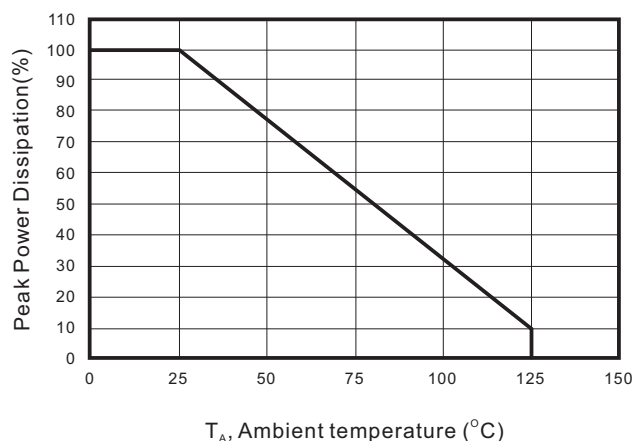


FIG.3 Clamping Voltage vs. Peak Pulse Current

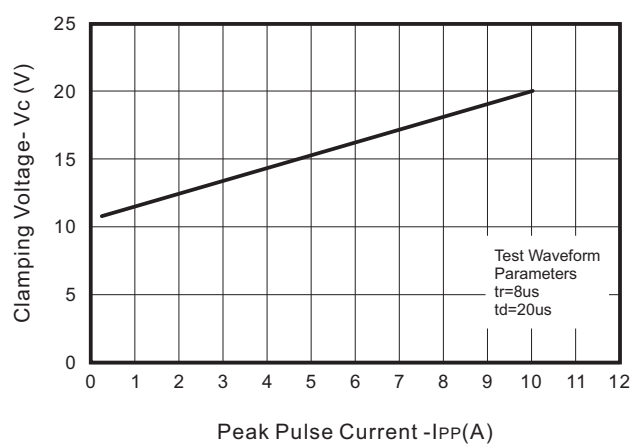


FIG.4 Normalized Junction Capacitance vs. Reverse Voltage

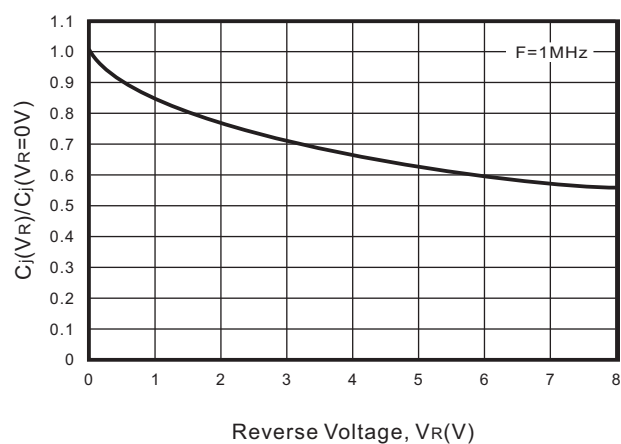


FIG.5 TLP Positive I-V Curve

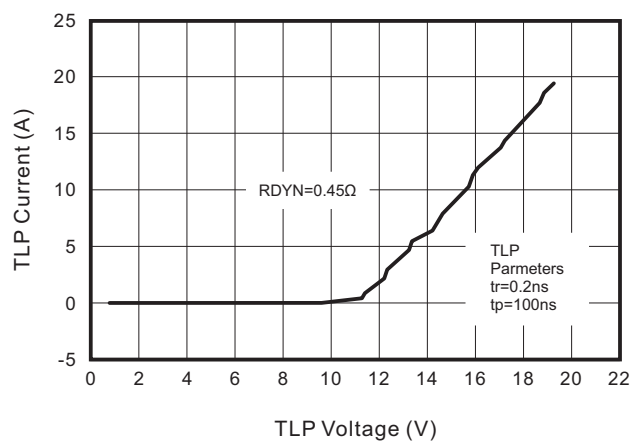
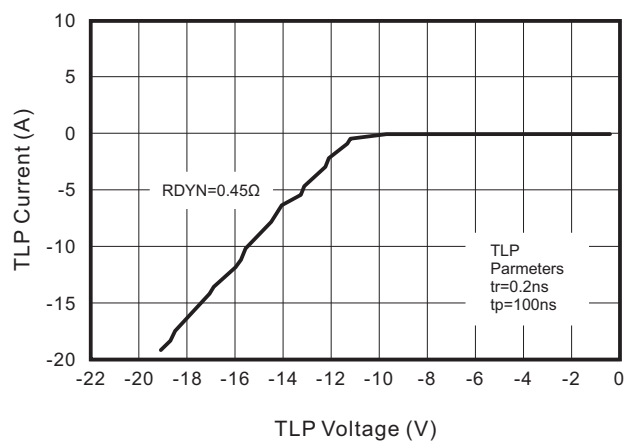


FIG.6 TLP Negative I-V Curve



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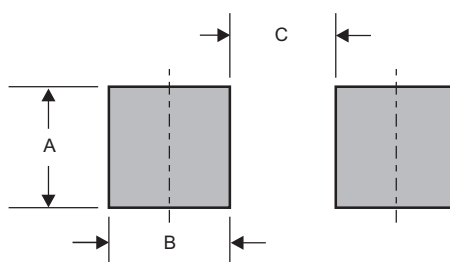
Pinning information

Pin	Simplified outline	Symbol
Bi-Directional		

Marking

Type number	Marking code
N08BT1006	D8

Suggested solder pad layout

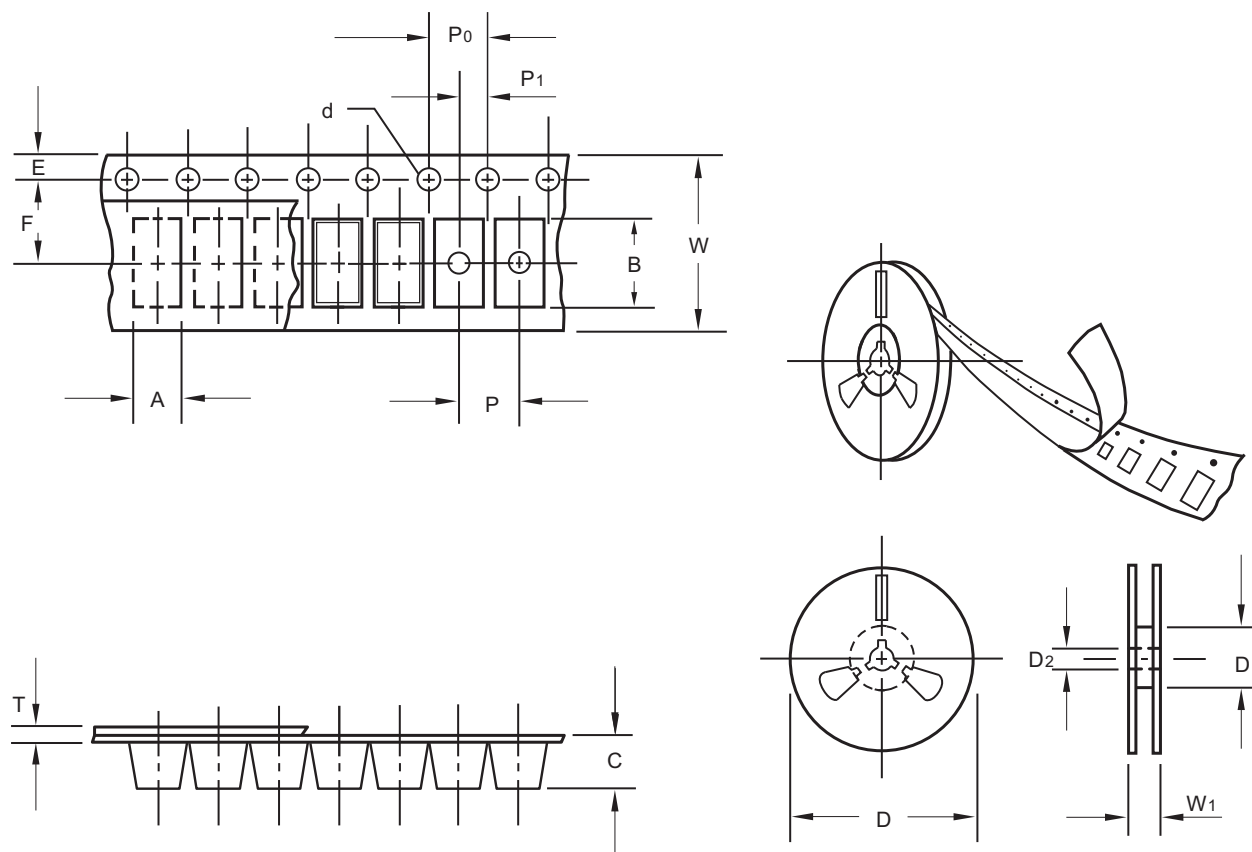


Dimensions in inches and (millimeters)

PACKAGE	A	B	C
T1006P2	0.024 (0.60)	0.014 (0.35)	0.012 (0.30)

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Packing information



unit:mm

Item	Symbol	Tolerance	T1006P2
Carrier width	A	0.1	0.70
Carrier length	B	0.1	1.12
Carrier depth	C	0.1	0.48
Sprocket hole	d	0.1	1.50
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D ₁	min	50.00
Feed hole diameter	D ₂	0.2	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	P ₀	0.1	4.00
Embossment center	P ₁	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W ₁	1.0	9.50

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

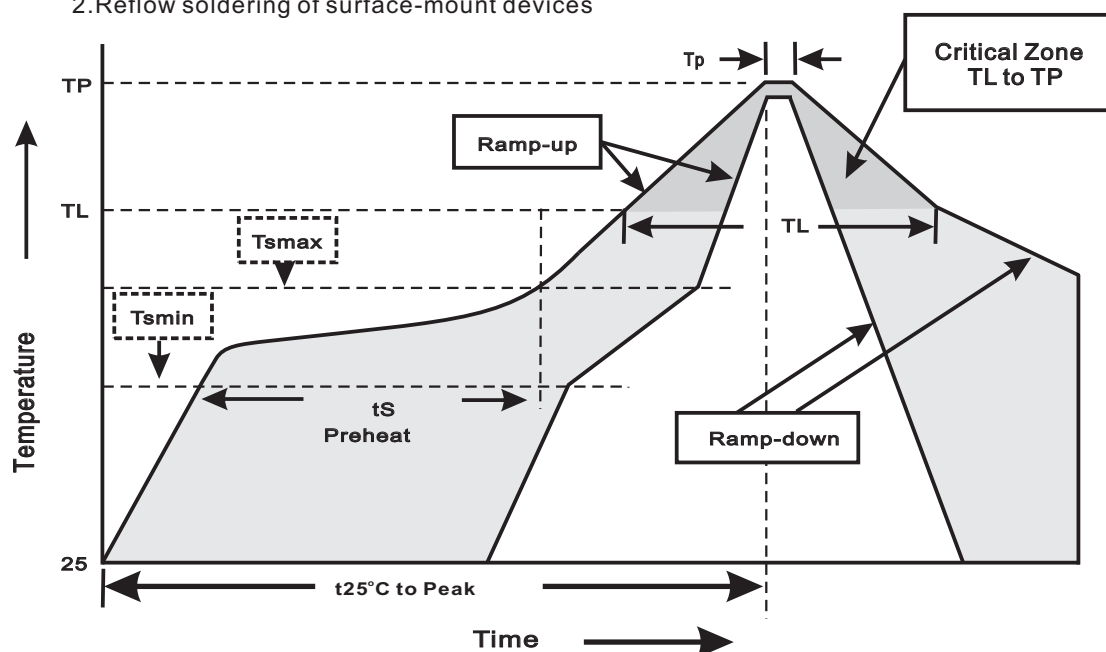
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Reel packing

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

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High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at $260 \pm 5^{\circ}\text{C}$ for $10 \pm 2\text{sec.}$	MIL-STD-750D METHOD-2031
2. Solderability	at $245 \pm 5^{\circ}\text{C}$ for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	$V_{\text{BR}} = V_{\text{BR Min}} * 80\%$ at $T_{\text{J}} = 150^{\circ}\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1038
4. Pressure Cooker	$15P_{\text{SIG}}$ at $T_{\text{A}} = 121^{\circ}\text{C}$ for 4 hrs.	JESD22-A102
5. Temperature Cycling	-55°C to $+125^{\circ}\text{C}$ dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
6. Humidity	at $T_{\text{A}} = 85^{\circ}\text{C}$, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
7. High Temperature Storage Life	at 150°C for 1000 hrs.	MIL-STD-750D METHOD-1031