

N03BT1006J

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N03BT1006J

80W Bi-Directional TVS For ESD Protection: 3.3V

Features

- 80Watts peak pulse power ($t_p=8/20\mu s$).
- Provide one data/power line to:
 - IEC 61000-4-2 $\pm 30kV$ (Contact), $\pm 30kV$ (Air).
 - IEC 61000-4-4 (EFT) 40A (5/50ns).
 - IEC 61000-4-5 (Lightning) 100A (8/20us).
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free parts, ex.N03BT1006J-H.

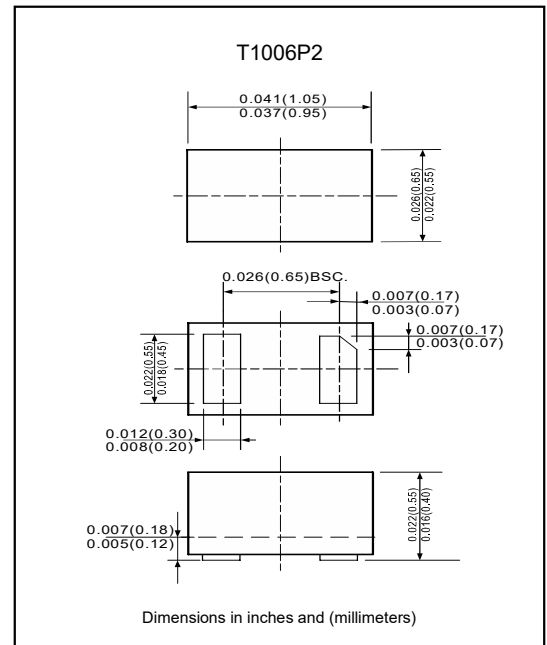
Applications

- Cell phone handsets and accessories.
- Microprocessor based equipment.
- Personal digital assistants (PDA's).
- Notebooks, desktops, and servers.
- Portable instrumentation.

Mechanical data

- Epoxy: UL94-V0 rated flame retardant.
- Case: T1006P2 package.
- Terminals: High temperature soldering guaranteed, $260^{\circ}C/10$ seconds at terminals.

Package outline



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

Parameter	Symbol	Value	Unit
Peak pulse power ($t_p=8/20\mu s$)	P_{PP}	80	W
Peak pulse current ($t_p=8/20\mu s$)	I_{PP}	10	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 30	KV
ESD per IEC 61000-4-2 (Contact)			
Junction temperature	T_J	+125	$^{\circ}C$
Storage temperature	T_{STG}	-55 to +125	$^{\circ}C$

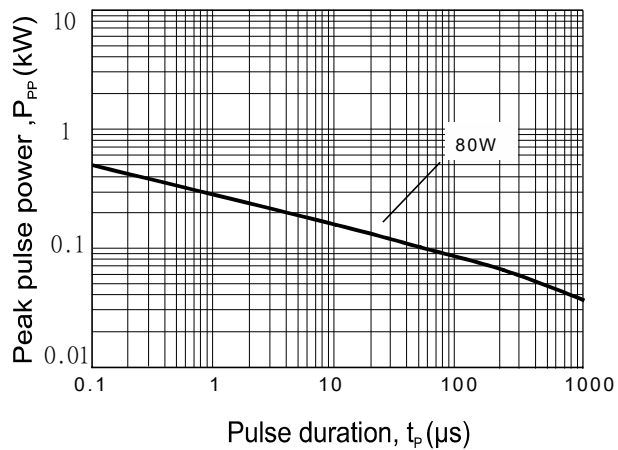
Electrical characteristics (At $T_A=25^{\circ}C$ unless otherwise noted)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Reverse stand-off voltage		V_{RWM}			3.3	V
Breakdown voltage	$I_T=1mA$	V_{BR}	4.1			V
Reverse leakage current	$V_{RWM}=3.3V$, $T=25^{\circ}C$	I_R		0.1	0.2	μA
Clamping voltage	$I_{PP}=16A$, $t_p=100ns$	V_C		8		V
Clamping voltage	$I_{PP}=5A$, $t_p=8/20\mu s$	V_C			6	V
	$I_{PP}=10A$, $t_p=8/20\mu s$			8		
Dynamic resistance		R_{DYN}		0.2		Ω
Junction capacitance	$V_R=0V$, $f=1MHz$	C_J		15		pF

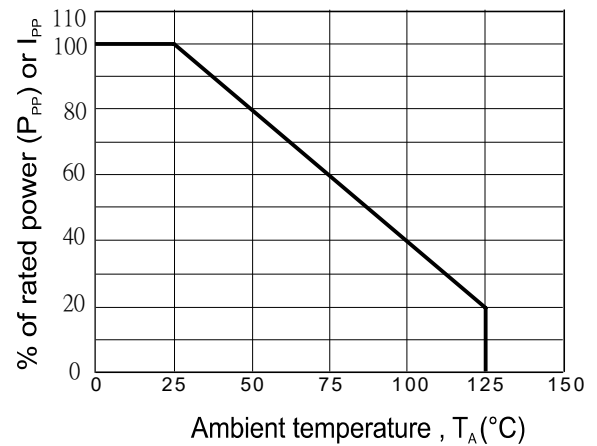
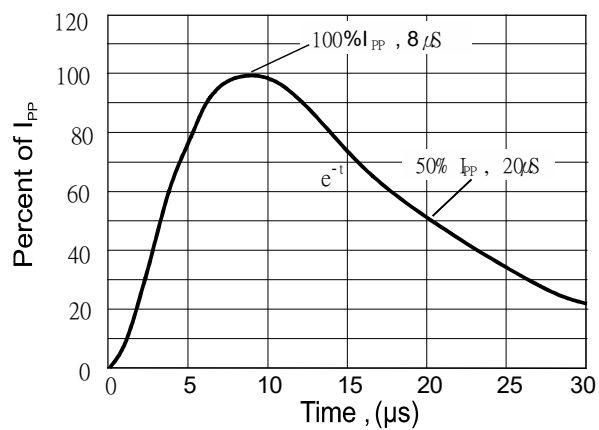
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Rating and characteristic curves

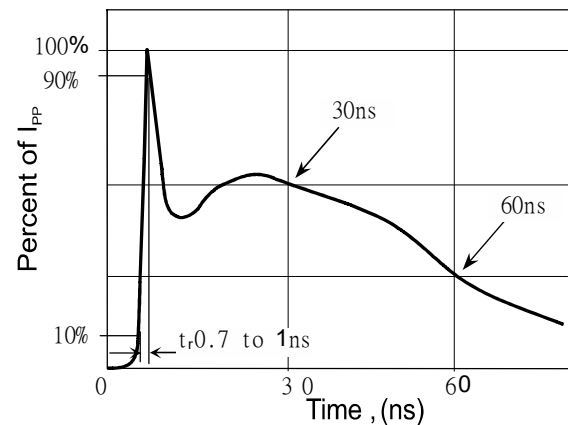
Peak pulse power rating curve



Pulse derating curve

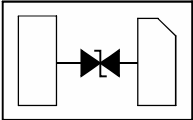
Pulse waveform-8/20 μ s

Pulse Waveform-ESD(IEC61000-4-2)



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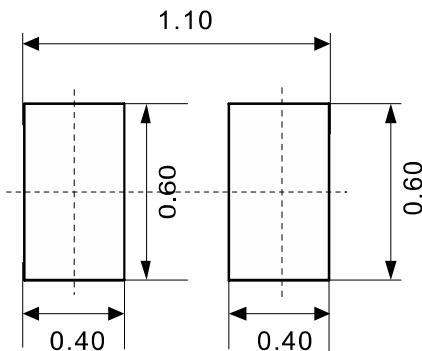
Pinning information

Pin	Simplified outline	Symbol
Bi-Directional		

Marking

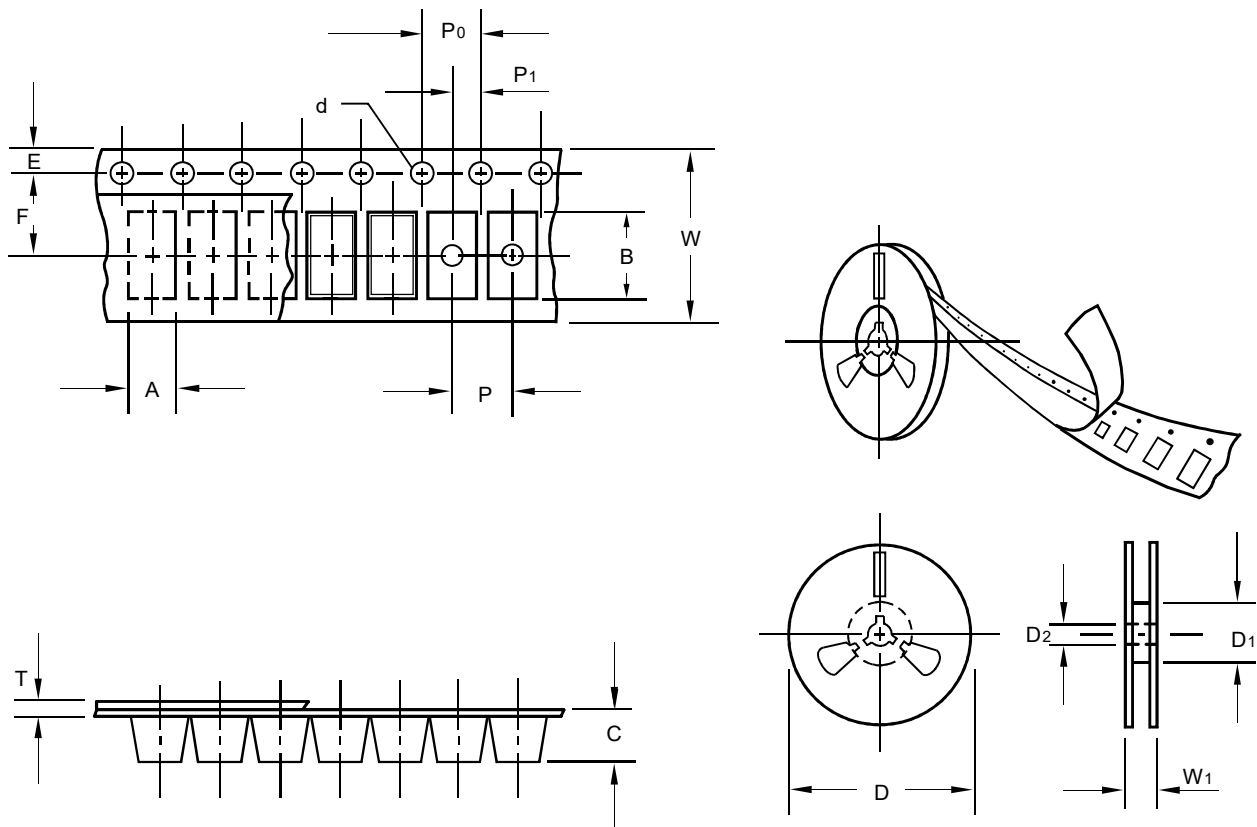
Type number	Marking code
N03BT1006J	3E

Suggested solder pad layout



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Packing information



unit:mm

Item	Symbol	Tolerance	T1006P2
Carrier width	A	0.1	0.66
Carrier length	B	0.1	1.15
Carrier depth	C	0.1	0.66
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	0.23
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.

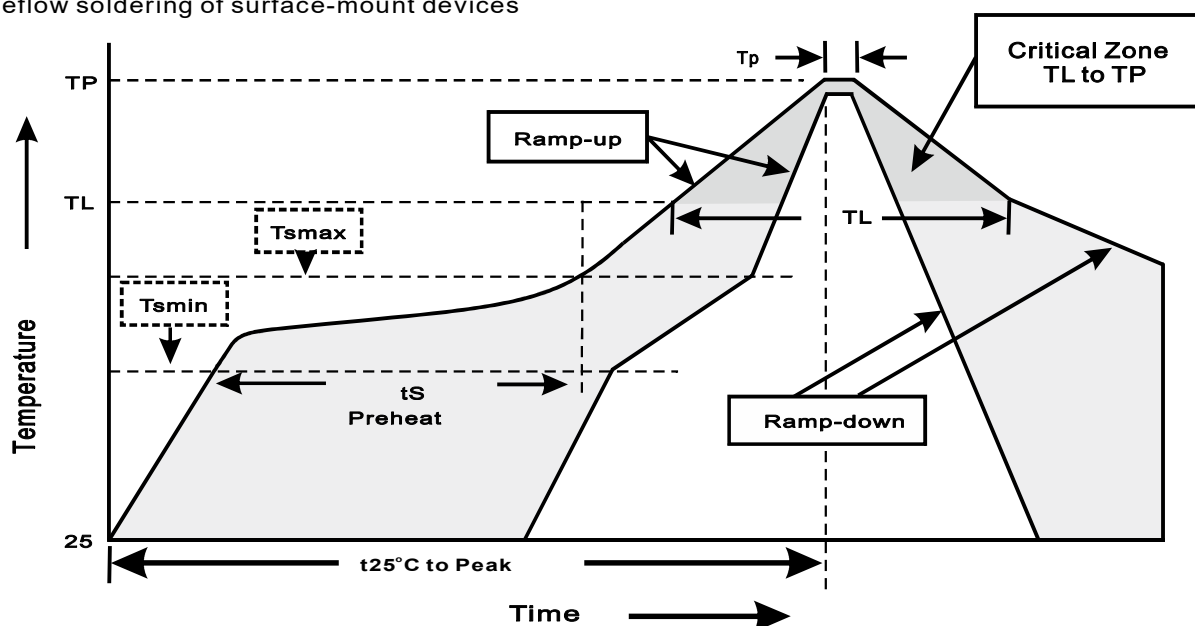
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Reel packing

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)
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 _{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