N02V5BT1006

List

N02V5BT1006

1,600W Surface Mount TVS Bi-Directional For ESD Protection : 2.5V

Features

- 1600W peak pulse power (t_P=8/20μs).
- Bidirectional configurations.
- Solid-state silicon-avalanche technology.
- Provide one data/power line to:
  IEC 61000-4-2 ±30kV(Contact), ±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.N02V5BT1006-H.

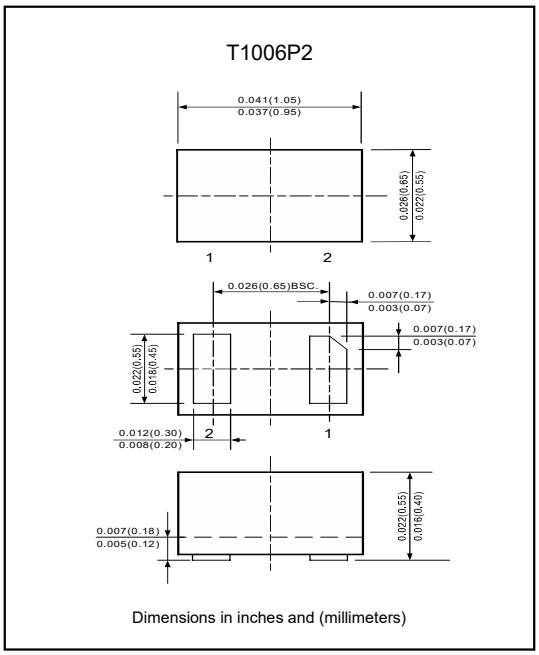
Applications

- 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°C/10 seconds at terminals.

Package outline



Dimensions in inches and (millimeters)

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

Parameter	Symbol	Value	Unit
Peak pulse power (t_p=8/20μs)	P_{PP}	1600	W
Peak pulse current (t_p=8/20μs)	I_{PP}	100	A
ESD discharge per IEC 61000-4-2 (Contact & Air)	V_{ESD}	±30	kV
Operating temperature	T_J	+125	°C
Storage temperature	T_{STG}	-55 to +150	°C

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

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Reverse stand-off voltage		V_{RWM}			2.5	V
Breakdown voltage	I_T=1mA	V_{BR}	3.3			V
Reverse leakage current	V_{RWM}=2.5V, T=25°C	I_R			0.5	μA
Clamping voltage	I_{PP}=100A, t_p=8/20μs	V_C		12	16	V
Junction capacitance	V_R=0V, f=1MHz	C_j		245		pF

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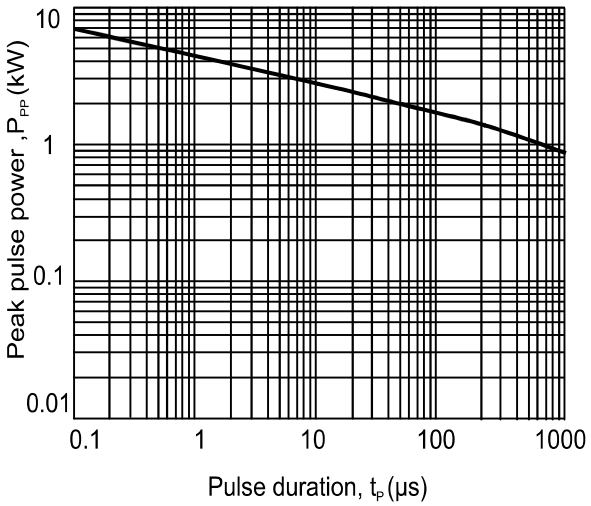
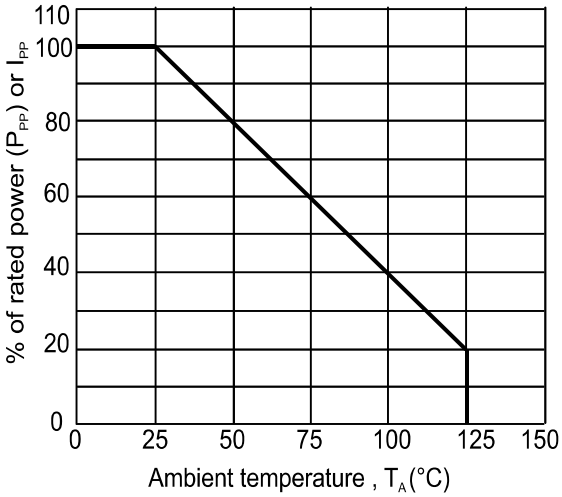
Rating and characteristic curves

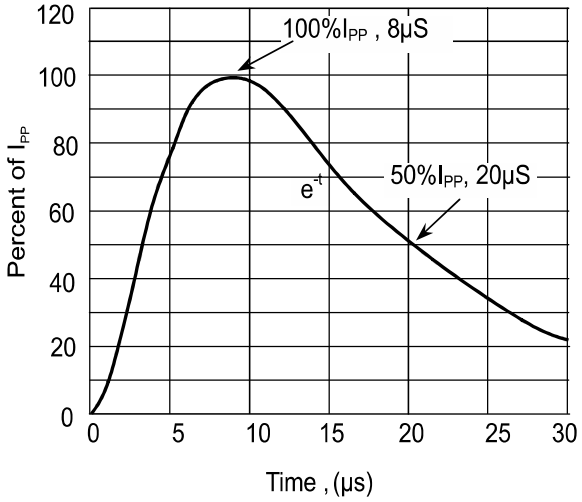
Peak pulse power rating curve



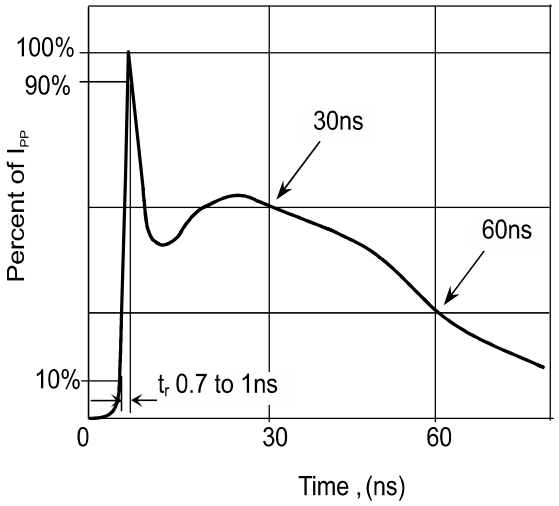
Pulse derating curve



Pulse waveform-8/20μs



Pulse Waveform-ESD(IEC61000-4-2)



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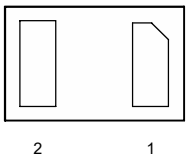
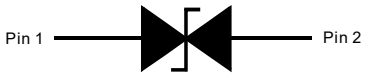
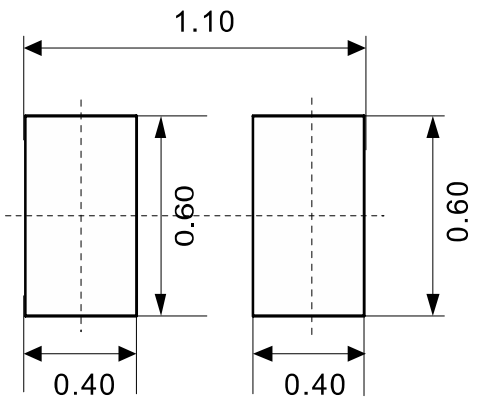
Pinning information

Pin	Simplified outline	Symbol
Bi-Directional		

Marking

Type number	Marking code
N02V5BT1006	HB

Suggested solder pad layout



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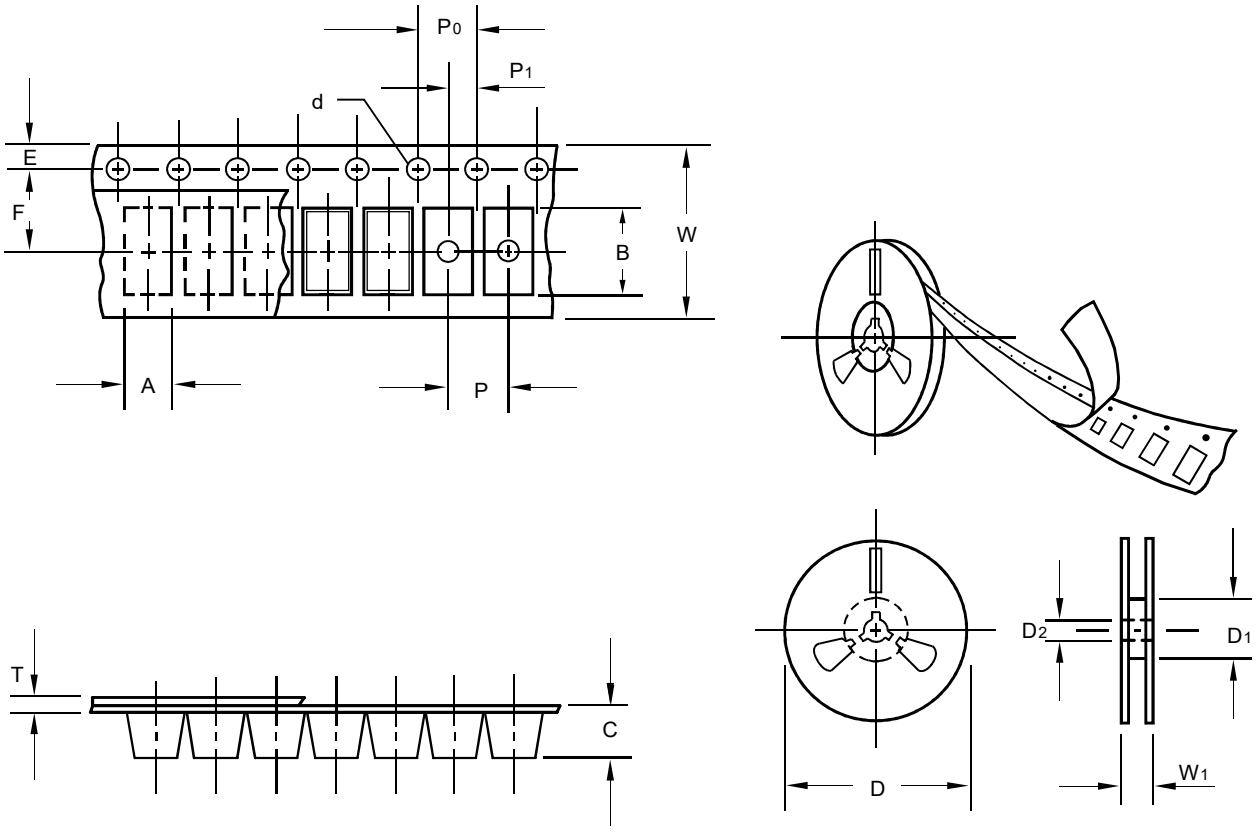
Packing information



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 accor dance with EIA standar RS-481-A and specifications listed above.

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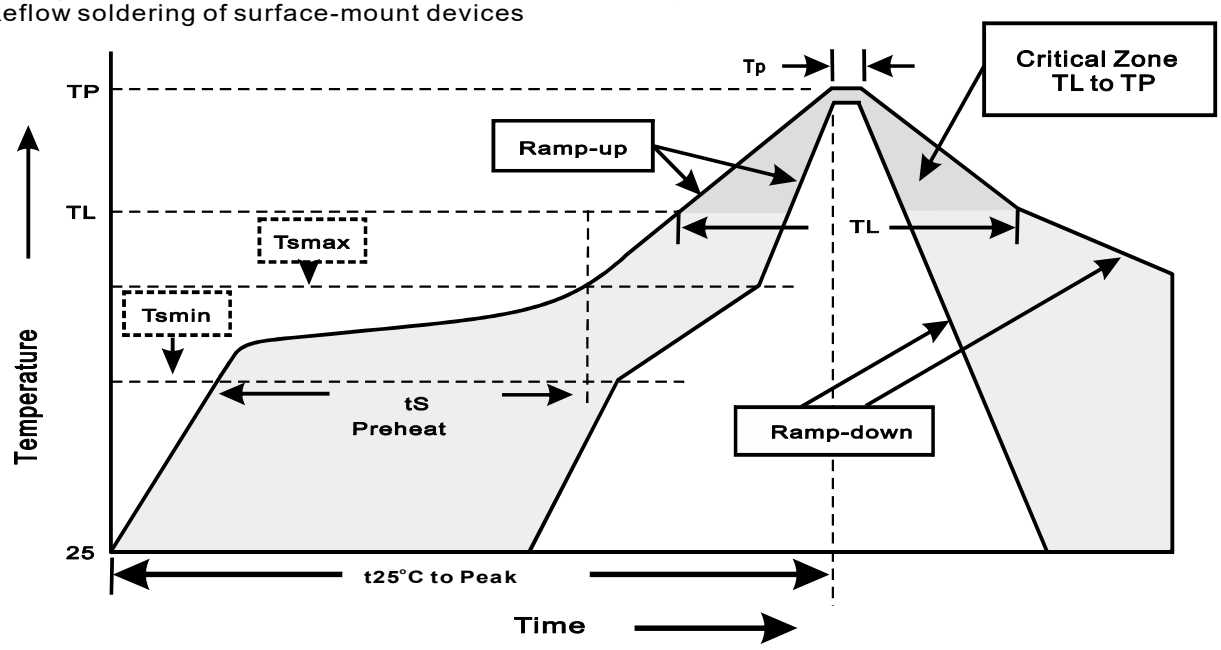
Reel packing

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(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