N05BT1006F

List

N05BT1006F

250W Surface Mount TVS Bi-Directional For ESD Protection-5.0V

Features

- 250Watts peak pulse power per (t_p=8/20μs).
- Working voltage : 5V.
- Low leakage current.
- Provide transient protection:
  IEC 61000-4-2 (ESD) Level 4, ±30KV(Air), ±30KV(Contact).
  IEC 61000-4-4 (EFT) 40A (5/50ns).
- We declare that the material of product compliance with RoHS requirements.
- Suffix "-H" indicates Halogen-free parts, ex.N05BT1006F-H.

Applications

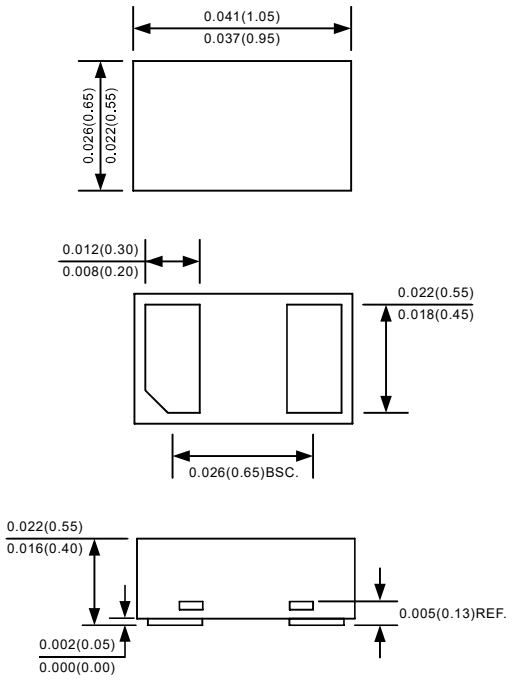
- Cell phone handsets and accessories.
- Microprocessor based equipment.
- Personal digital assistants (PDA's).
- Notebooks, desktops, and servers.
- Portable instrumentation.
- Networking and telecom.
- Serial and parallel ports.
- Peripherals.

Mechanical data

- T1006P2 package
- Molding compound flammability rating : UL94V-0
- Making part number, data code.
- Packaging : Tape and reel.
- Weight : Approximated 0.73 mg.

Package outline

T1006P2



Dimensions in inches and (millimeters)

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

Parameter	Symbol	Value	Unit
Peak pulse power (tp=8/20μs)	P_{PP}	250	W
Peak pulse current (tp=8/20μs)	I_{PP}	18	A
ESD Per IEC 61000-4-2 (Air)	V_{ESD}	±30	KV
ESD Per IEC 61000-4-2 (Contact)		±30	
Operating temperature	T_{OPT}	+125	℃
Storage temperature	T_{STG}	-55 to +150	℃

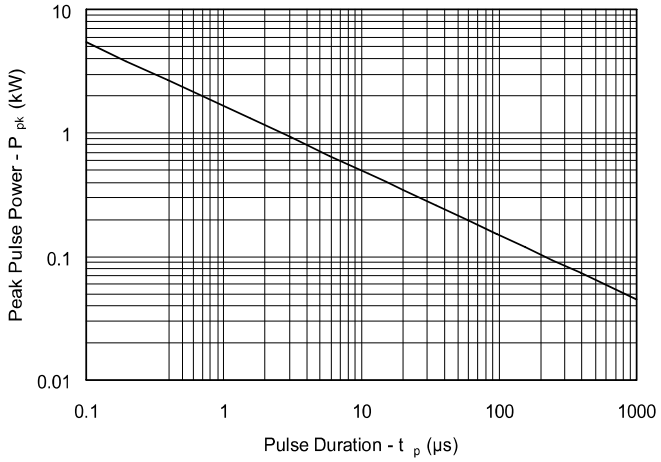
Electrical characteristics (at T_A=25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Reverse stand-off voltage		V_{RWM}			5.0	V
Breakdown voltage	I_T=1mA (Between I/O_1 and I/O_2)	V_{BR}	6.0		9.0	V
Reverse leakage current	V_{RWM}=5V (Between I/O_1 and I/O_2)	I_R		0.1	1.0	μA
Clamping voltage	I_{PP}=1A, t_p=8/20μs (Between I/O_1 and I/O_2)	V_C			9	V
	I_{PP}=18A, t_p=8/20μs (Between I/O_1 and I/O_2)	V_C			20	V
Junction capacitance	V_R=0V, f=1MHz (Between I/O_1 and I/O_2)	C_{ESD}		25		pF

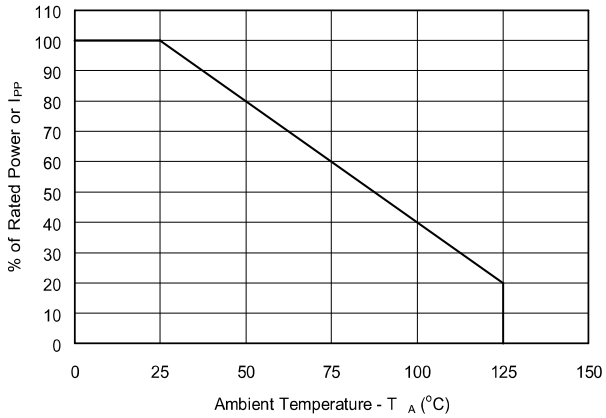
N05BT1006F

Rating and characteristic curves

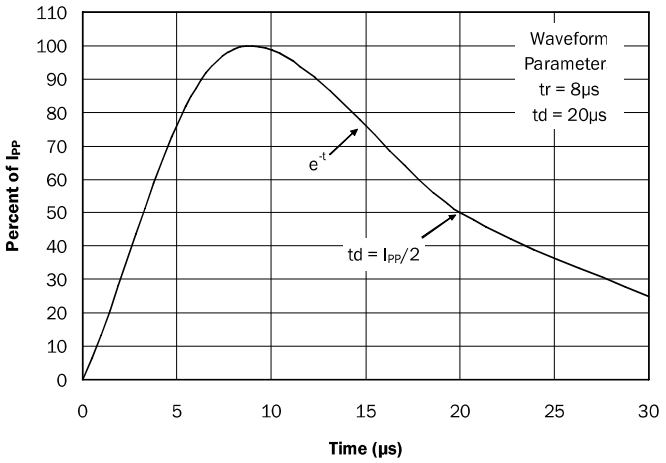
Non-Repetitive Peak Pulse Power vs. Pulse Time



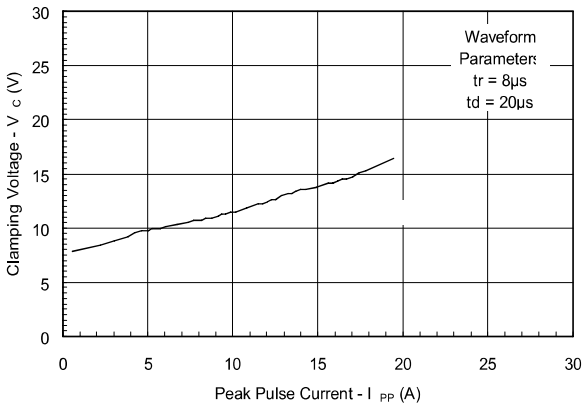
Power Derating Curve



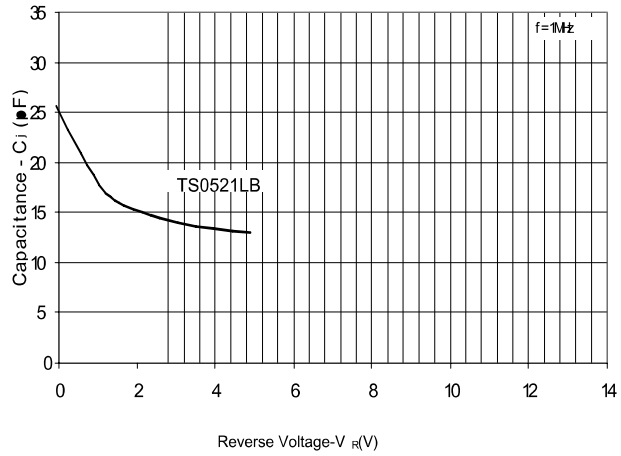
Pulse Waveform



Clamping Voltage vs. Peak Pulse Current



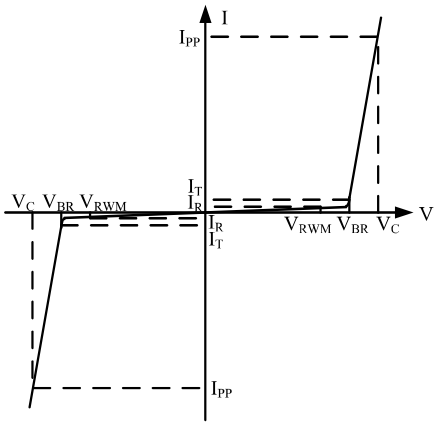
Capacitance vs. Reverse Voltage



N05BT1006F

Electrical Parameters (T_A=25℃)

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
C_{ESD}	Parasitic Capacitance
V_R	Reverse Voltage
f	Small Signal Frequency



Bi-Directional TVS

Pinning information

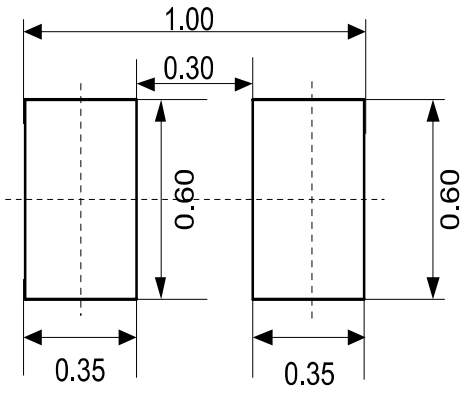
Marking Code	Symbol
S5	

Note:

(1) "S5" is part number, fixed

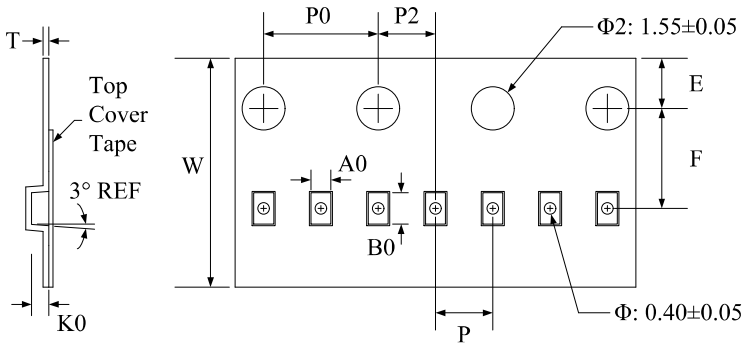
(2) no cathode line and date code

Suggested solder pad layout

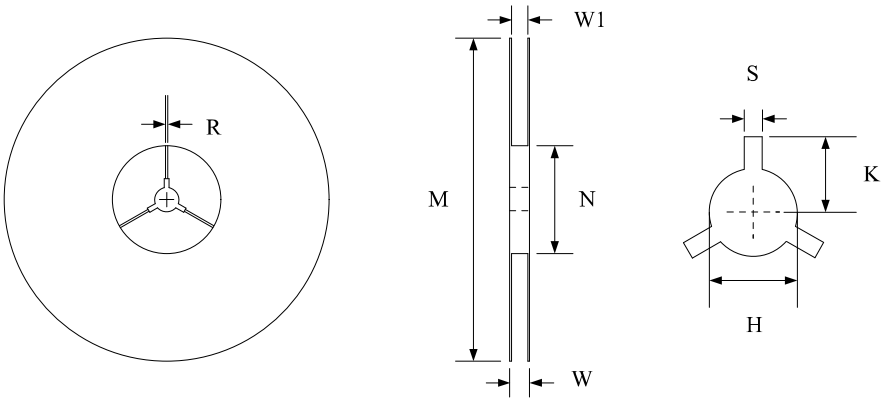


N05BT1006F

Packing information



Symbol	W	A0	B0	K0	E	F	P	P0	P2	T
Dimensions (mm)	8.00±0.1	0.7±0.05	1.15±0.05	0.55±0.05	1.75±0.1	3.5±0.05	2.0±0.1	4.0±0.1	2.0±0.05	0.2±0.05



Symbol	Reel Size	M	N	W	W1	H	S	K	R
Dimensions (mm)	Φ178	178.0±1.0	60.0±1.0	11.5±0.5	9.0±0.5	13.0±0.5	2.0±0.1	11.0±0.2	1.0±0.05

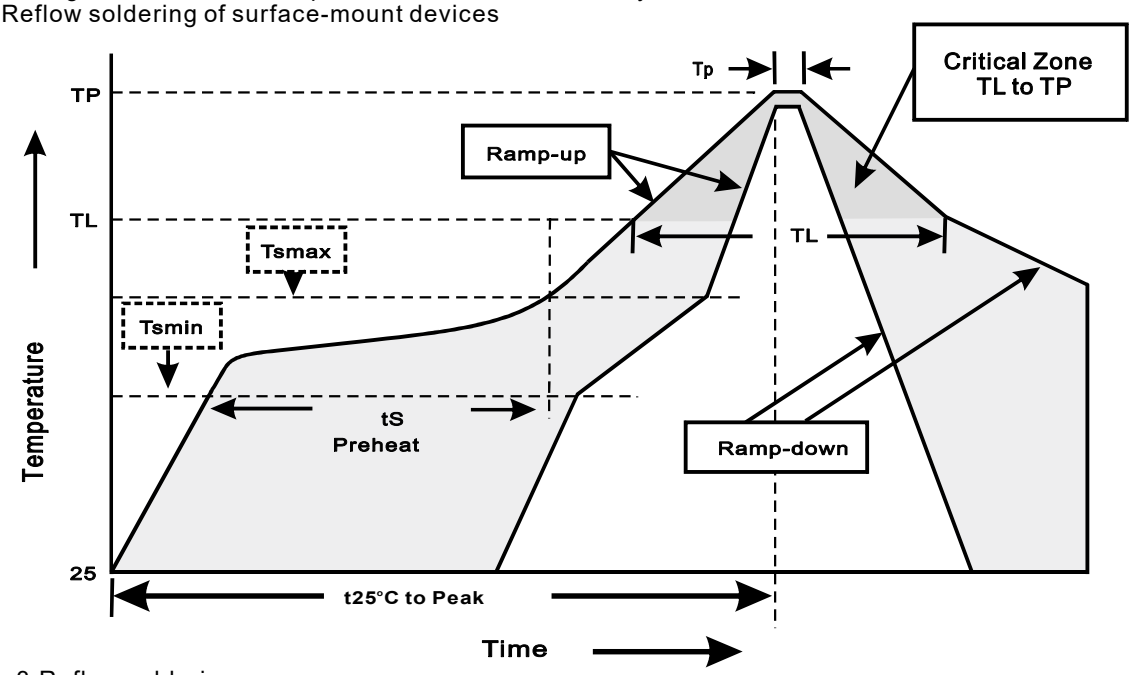
N05BT1006F

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(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