

N05UT1006G

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N05UT1006G

450W Uni-Directional TVS For ESD Protection : 5.0V

Features

- 450 Watts peak pulse power. ($T_p=8/20\mu s$)
- High temperature soldering guaranteed: 260°C/10 seconds at terminals.
- Protection one data/power line to:
 - IEC 61000-4-2 (ESD) $\pm 30kV$ (Air), $\pm 30kV$ (Contact).
 - IEC 61000-4-4 (EFT) 40A (5/50ns).
 - IEC 61000-4-5 (Lightning) 30A (8/20us).
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free parts, ex. N05UT1006G-H.

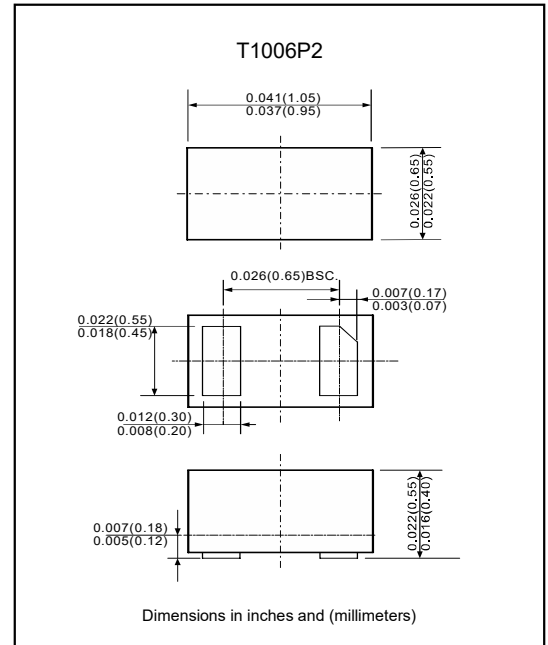
Applications

- Microprocessor based equipment.
- Personal digital assistants (PDA's).
- Notebooks, handhelds and digital cameras.
- Portable instrumentation.

Mechanical data

- Epoxy: UL94-V0 rated flame retardant.
- Case: T1006P2 package.

Package outline



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

Parameter	Symbol	Value	Unit
Peak pulse power (8/20 μs)	P_{PP}	450	W
Peak pulse current (8/20 μs)	I_{PP}	30	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 30	KV
ESD per IEC 61000-4-2 (Contact)		± 30	
Junction temperature	T_J	+125	$^\circ C$
Storage temperature range	T_{STG}	-55 to +150	$^\circ C$

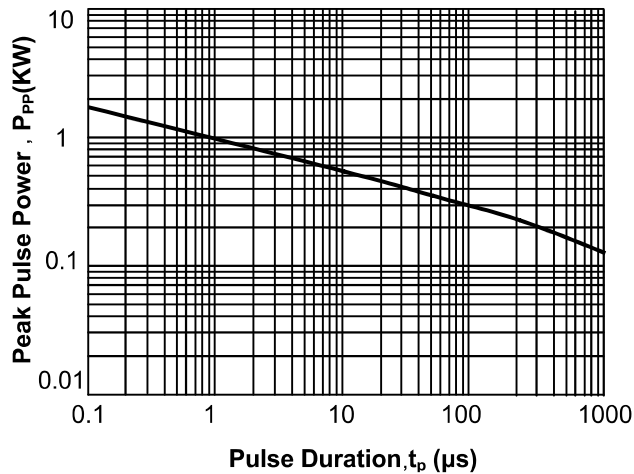
Electrical characteristics (At $T_A=25^\circ C$ unless otherwise noted)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Reverse stand-off voltage		V_{RWM}			5	V
Breakdown voltage	$I_T=1mA$	V_{BR}	6			V
Reverse leakage current	$V_{RWM}=5V$	I_R			0.5	μA
Clamping voltage (IEC 64000-4-5)	$I_{PP}=30A$	V_C			15	V
Dynamic resistance	$T_p=100ns$	R_{dyn}		0.1		Ω
Junction capacitance	$V_R=0V, f=1.0MHz$	C_J		220		pF

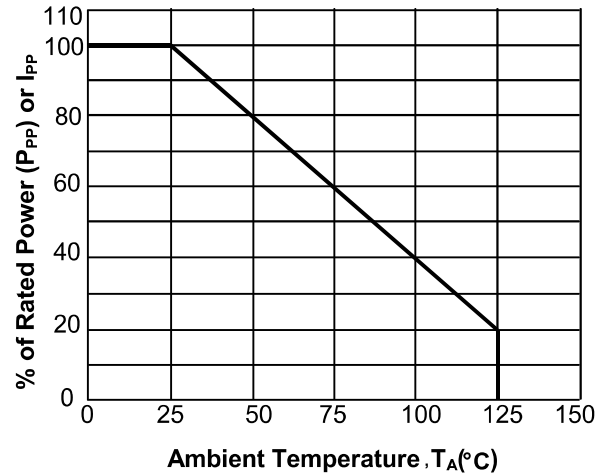
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Rating and characteristic curves

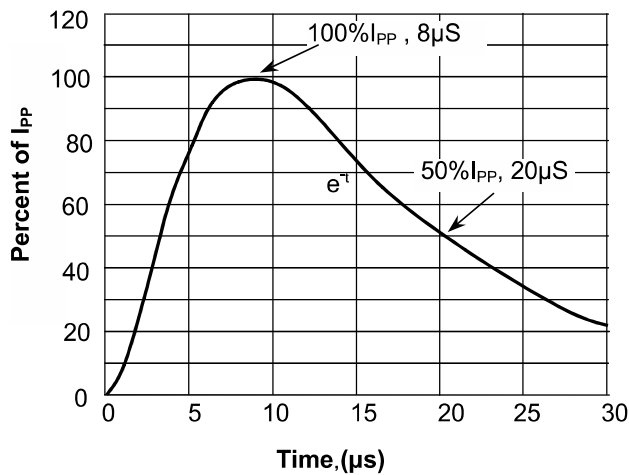
Peak Pulse Power Rating Curve



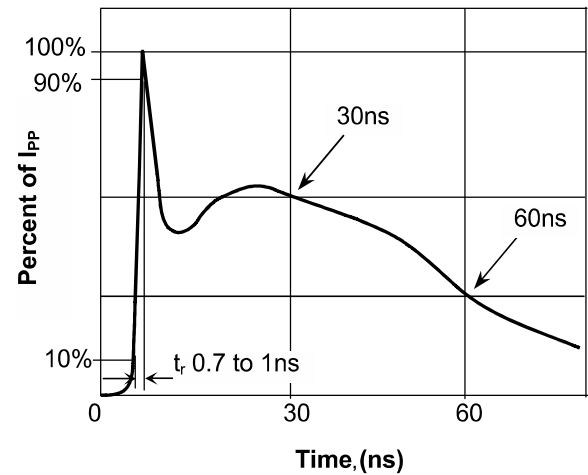
Pulse Derating Curve



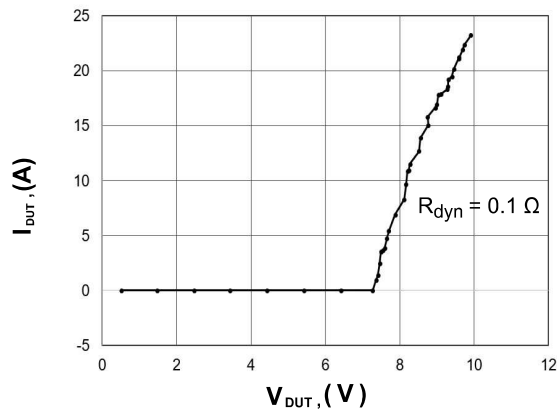
Pulse Waveform-8/20 μ s



Pulse Waveform-ESD(IEC61000-4-2)

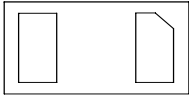


Positive Clamping voltage (TLP)



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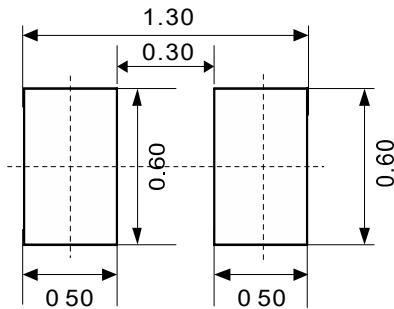
Pinning information

Pin	Simplified outline	Symbol
Pin1 Cathode Pin2 Anode	 Top view  Bottom view	

Marking

Type number	Marking code
N05UT1006G	05F

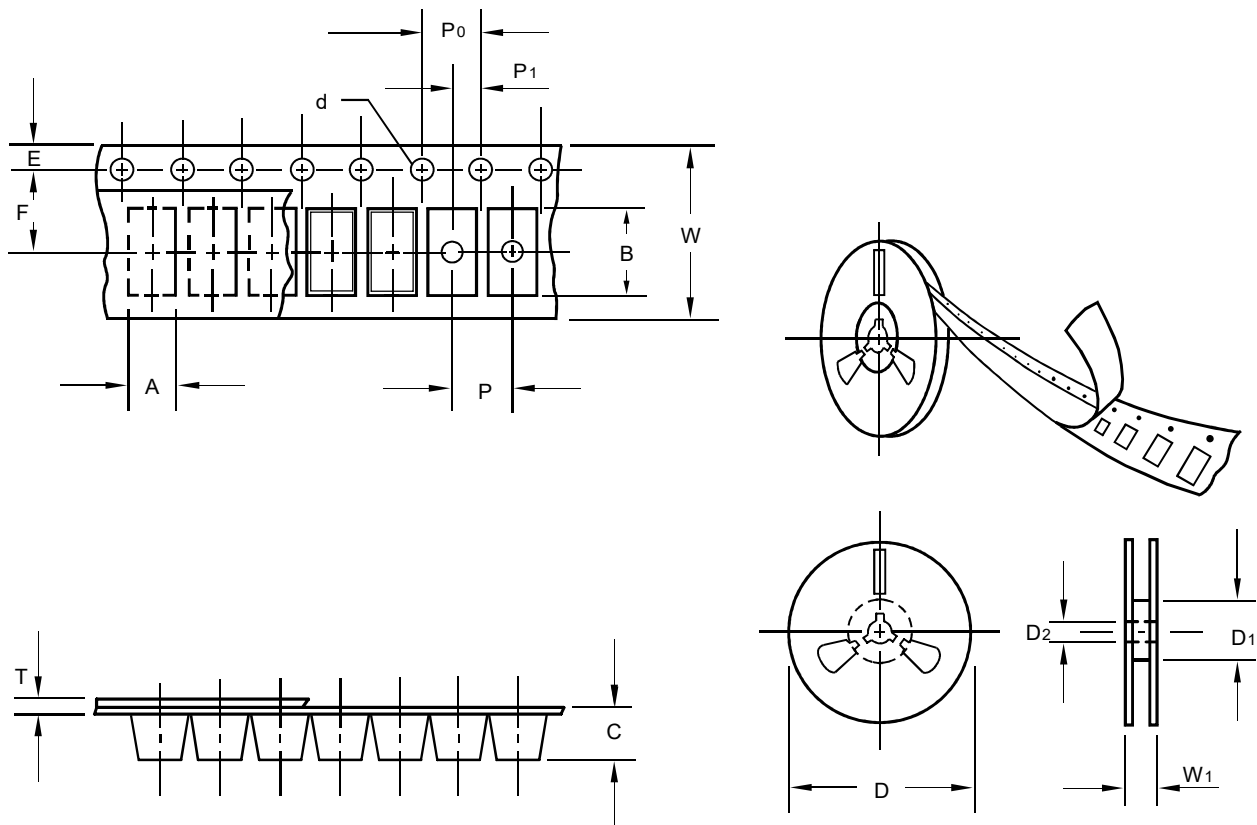
Suggested solder pad layout



Dimensions in millimeters

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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	1.55
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D1	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D1	min	55.00
Feed hole diameter	D2	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	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W1	1.0	9.50

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

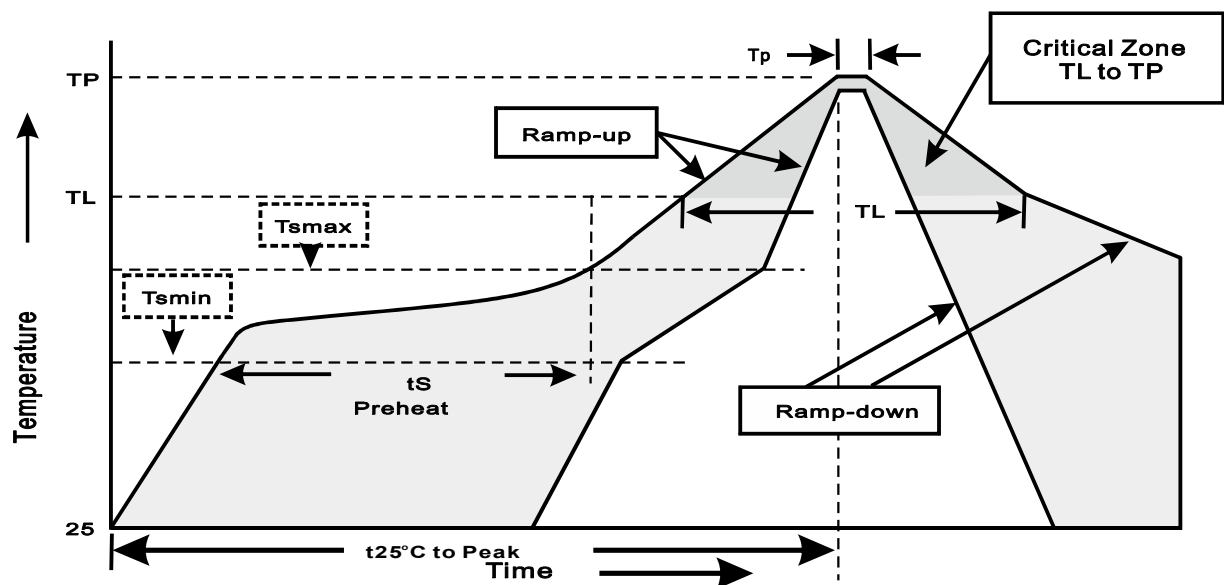
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Reel packing

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

- Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 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