

N28UT1610-H

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3200W Uni-Directional TVS For ESD Protection : 28V

Features

- Peak pulse current : 80A(Max.) ($t_p=8/20\mu s$).
- Low clamping voltage.
- Low leakage current.
- Provide transient protection:
IEC 61000-4-2 (ESD) $\pm 30kV$ (Air), $\pm 30kV$ (Contact)
- Lead-free parts meet RoHS requirements.
- Halogen-free (IEC61249-2-21).

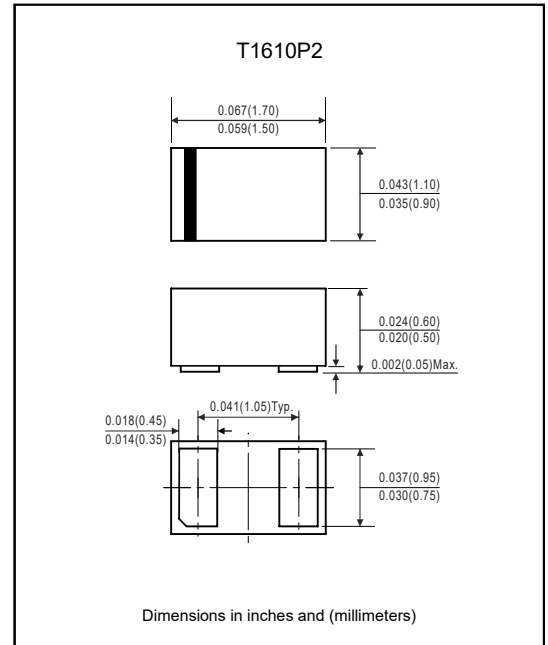
Applications

- Cellular handsets and accessories.
- Display ports, MDDI ports, USB ports, and SATA ports.
- Digital visual interface (DVI).
- PCI express.

Mechanical data

- Case : Molded plastic, DFN1610-2 (T1610P2).
- Epoxy: UL94V-0 rated flame retardant.

Package outline



Maximum ratings (At T=25°C, RH=45%~75%, unless otherwise noted)

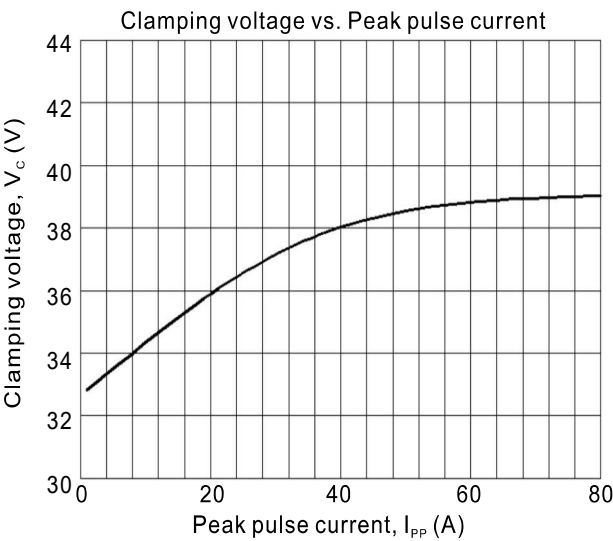
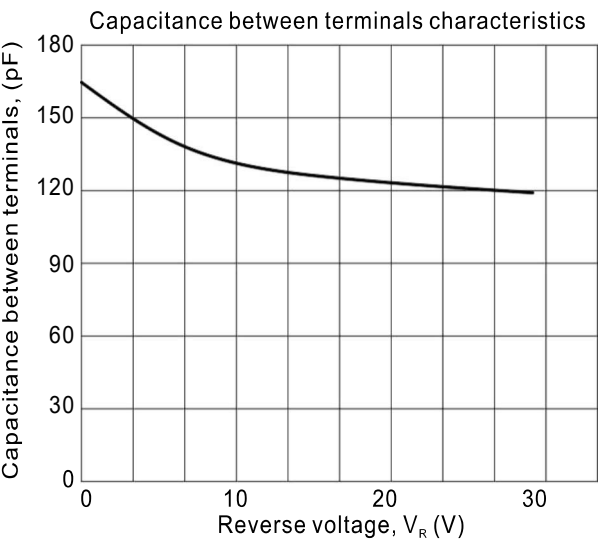
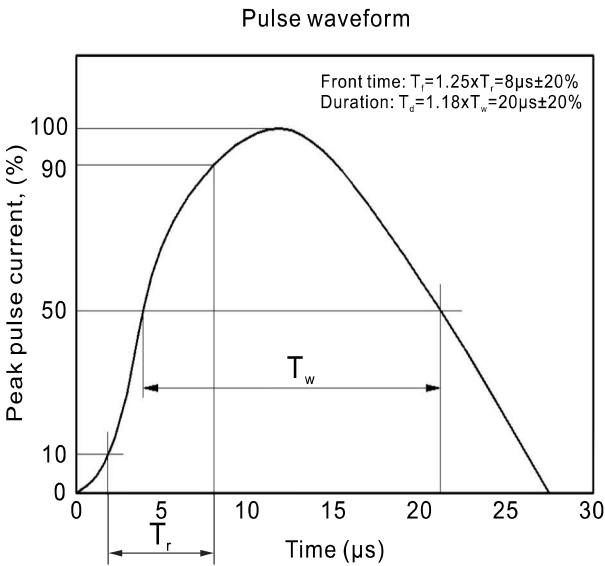
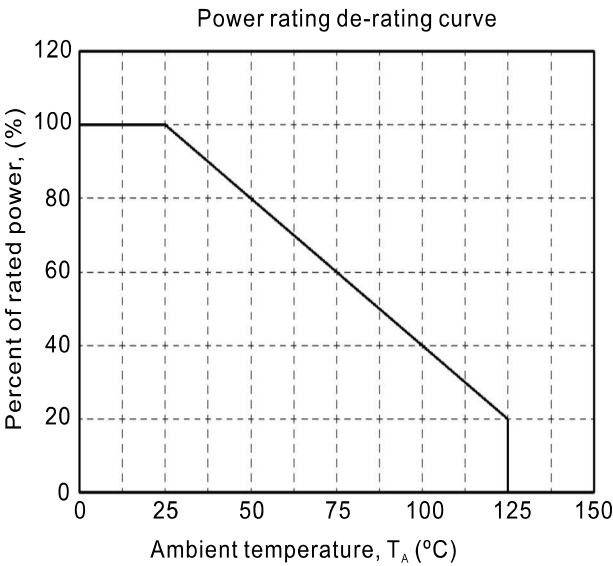
Parameter	Symbol	Ratings	Unit
Peak pulse power ($t_p=8/20\mu s$)	P_{PP}	3200	W
Peak pulse current ($t_p=8/20\mu s$)	I_{PP}	80	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating temperature	T_J	+125	°C
Storage temperature range	T_{STG}	-55 to +150	°C

Electrical characteristics (At T=25°C, RH=45%~75%, unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse stand-off voltage	V_{RWM}				28	V
Reverse breakdown voltage	V_{BR}	$I_R = 1mA$	31		35	V
Reverse leakage current	I_R	$V_R = 28V$			0.5	μA
Clamping voltage	V_C	$I_{PP} = 1A, t_p = 8/20\mu s$			33	V
		$I_{PP} = 80A, t_p = 8/20\mu s$			40	
Junction capacitance	C_J	$V_R=0V, f=1.0MHz$		165	180	pF

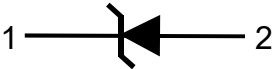
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Rating and characteristic curves



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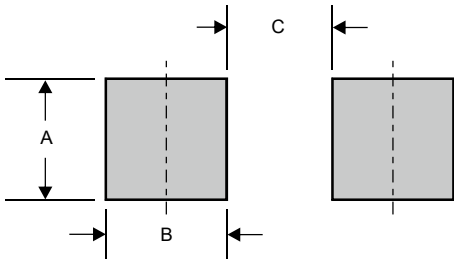
Pinning information

Pin	Simplified outline	Symbol
Pin1 Cathode Pin2 Anode		

Marking

Type number	Marking code
N28UT1610-H	28P

Suggested solder pad layout

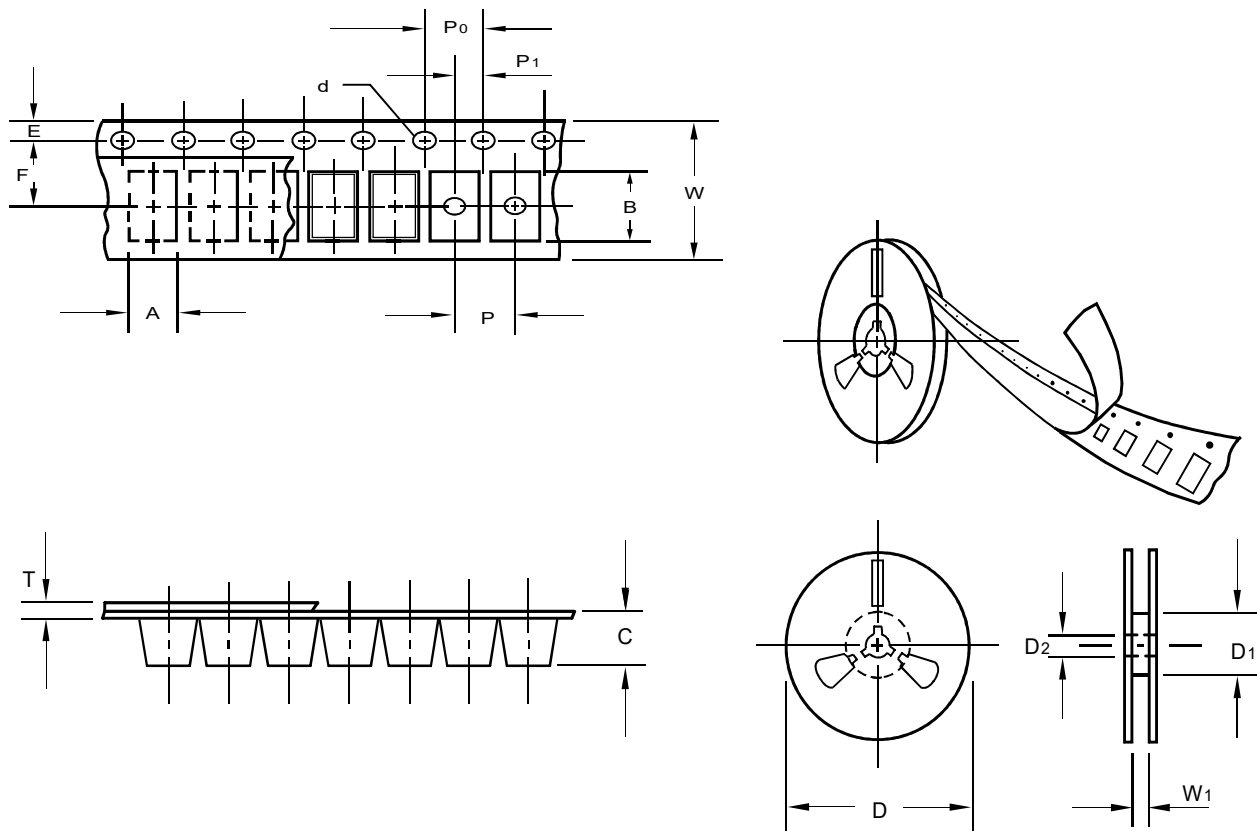


Dimensions in inches and (millimeters)

PACKAGE	A	B	C
T1610P2	0.039 (1.00)	0.024 (0.62)	0.023 (0.58)

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Packing information



unit:mm

Item	Symbol	Tolerance	T1610P2
Carrier width	A	0.1	1.15
Carrier length	B	0.1	1.80
Carrier depth	C	0.1	0.63
Sprocket hole	d	0.1	1.55
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D1	min	50.00
Feed hole diameter	D2	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	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.20
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.

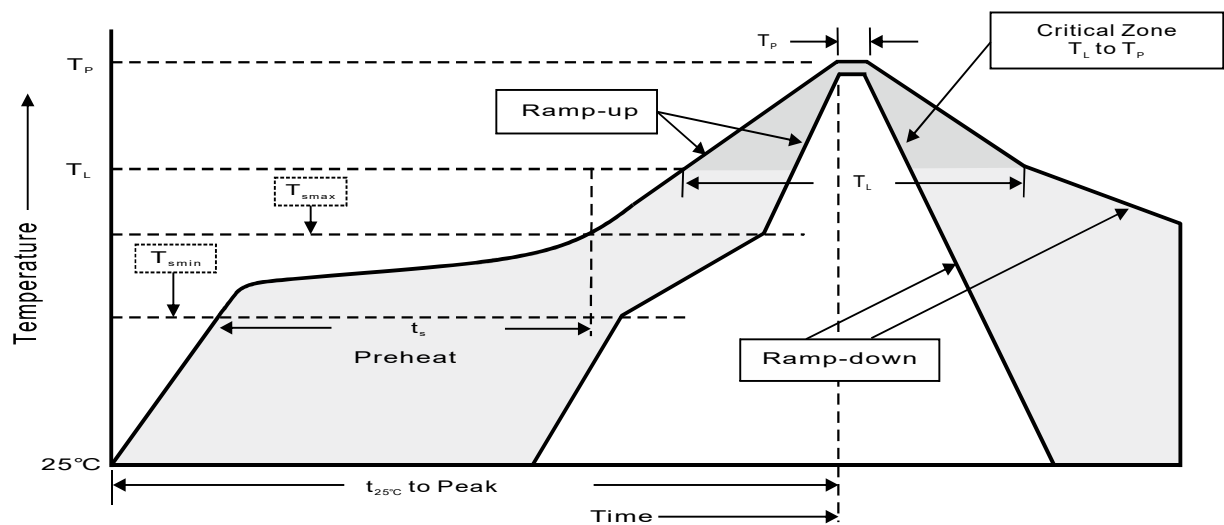
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Reel packing

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)
T1610P2	7"	3,000	4.0	30,000	183*123*183	178	382*257*387	240,000

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_{smin}) - Temperature Max (T_{smax}) - Time (Min to Max) (t_s)	150°C 200°C 60 ~ 120 sec
T_{smax} to T_L - Ramp-up rate	< 3 °C/sec
Time maintained above : - Temperature (T_L) - Time (T_L)	217°C 60 ~ 260 sec
Peak temperature (T_p)	255 °C -0/+5°C
Time with 5°C of actual peak temperature (T_p)	10 ~30 sec
Ramp-down rate	< 6 °C/sec
Time 25°C to peak temperature	< 6 minutes