Description

The XT2N12VU TVS diode is designed to replace multilayer varistors (MLVs) in portable applications such as cell phones, notebooks, and PDA's. It offers superior electrical characteristics such as low clamping voltage, low leakage current and high surge capability. It is designed to protect sensitive electronic components which are connected to power lines, from over-stress caused by ESD (Electrostatic Discharge), EFT (Electrical Fast Transients) and Lightning.

The XT2N12VU is in a DFN1610-2L package and will protect one unidirectional line. It may be used to provide ESD protection up to ±30kV (Contact and air discharge) according to IEC61000-4-2 , and withstand peak pulse current up to 70A (8/20μs) according to IEC61000-4-5.

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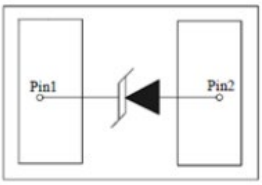
DFN1610-2L



Circuit Diagram

Features

- Working voltage: 12V
- DFN1610-2L Package
- 1600 Watts peak pulse power (t_p=8/20us)
- Transient protection for data lines to
  IEC 61000-4-2 (ESD) ±30kV (air),
  ±30kV (contact)
  IEC 61000-4-5 (Surge) 70A (8/20us)
- Low leakage current
- Low clamping voltage
- Solid-state silicon-avalanche technology

Pin1 12P Pin2

Marking

Applications

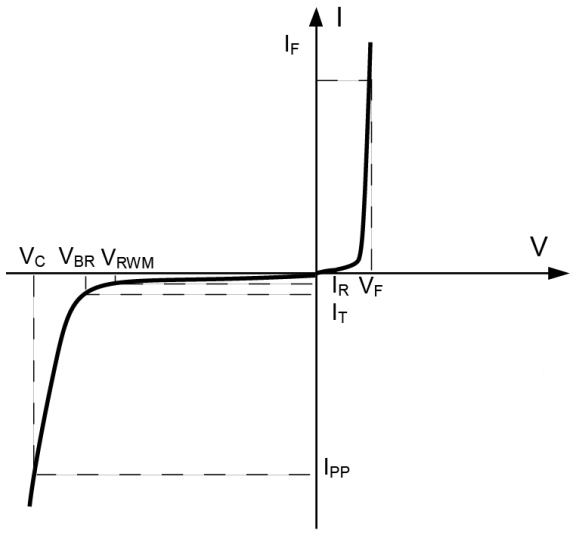
- Power lines
- Personal digital assistants (PDA's)
- Microprocessors based equipment
- Notebooks, Desktops, and Servers
- Cell phone Handsets and Accessories
- Portable Electronics
- Peripherals

Order Information

Device	Package	Shipping
XT2N12VU	DFN1610-2L	3000/Tape&Reel

Definitions of electrical characteristics

Symbol	Parameter
V_{RWM}	Reverse Stand-off Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Reverse Breakdown Voltage @ I_T
I_T	Test Current
I_{PP}	Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
I_F	Forward Current
V_F	Forward Voltage @ I_F
C_j	Junction Capacitance
I_{PP}	Peak Pulse Current



Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power (t_P = 8/20μS)	P_{PK}	2000	W
ESD according to IEC61000-4-2 air discharge	V_{ESD}	±30	kV
ESD according to IEC61000-4-2 contact discharge		±30	kV
Lead Soldering Temperature	T_L	260 (10 sec)	℃
Operating Temperature	T_{OP}	-55 to +125	℃
Storage Temperature	T_{STG}	-55 to +150	℃

Electrical Characteristics (Ta=25℃, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}				12.0	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	13.3	14.4	17	V
Reverse Leakage Current	I_R	V_{RWM} =10V			1	μA
Peak Pulse Current	I_{PP}	t_P = 8/20μs			70	A
Clamping Voltage	V_C	I_{PP}=20A t_P = 8/20μs		16	19	V
		I_{PP}=40A t_P = 8/20μs		20	24	V
		I_{PP}=70A t_P = 8/20μs		22	28	V
Junction Capacitance	C_j	V_R=0V f = 1MHz		370	450	pF

Typical Characteristics (Ta=25℃, unless otherwise noted)

FIG.1:V- I curve characteristics (Uni-directional)

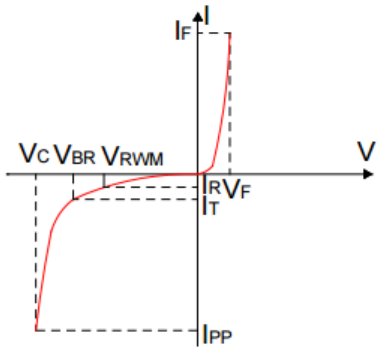


FIG.2: Pulse waveform (8/20μs)

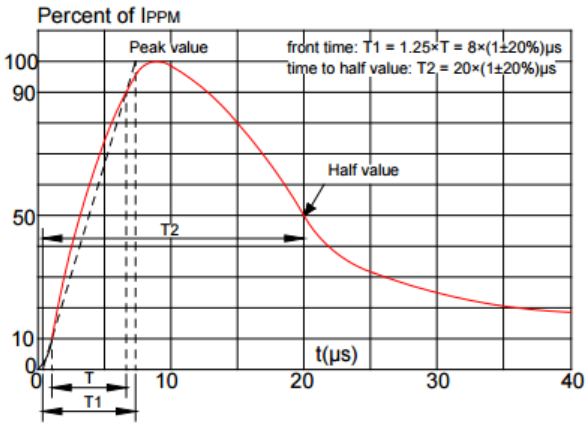


FIG.3: Pulse derating curve

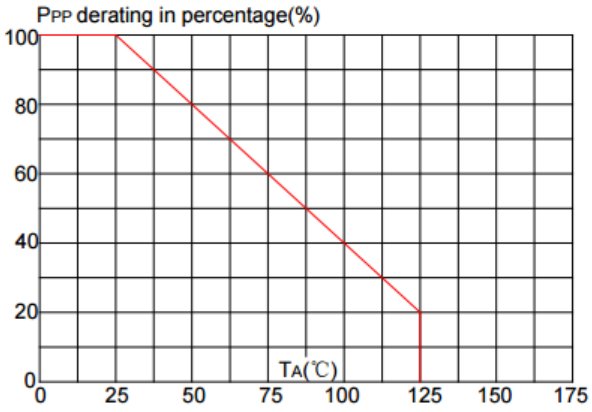
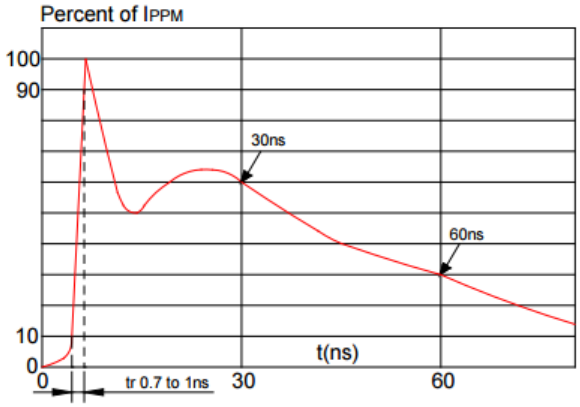
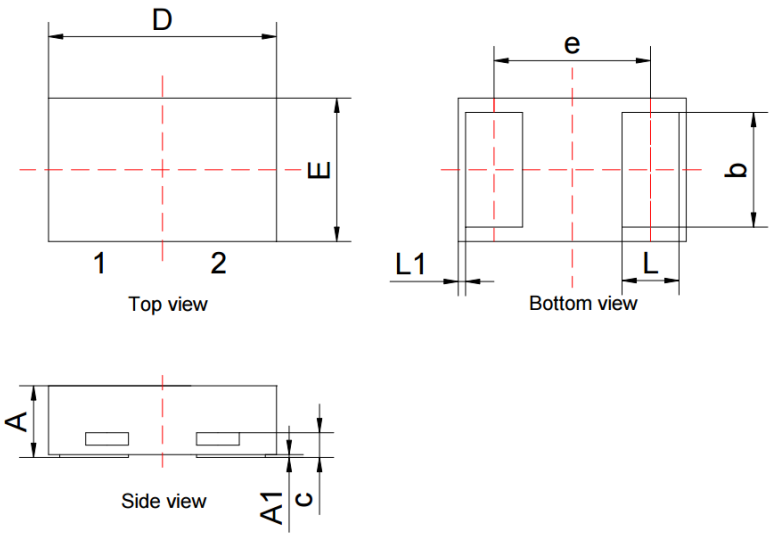


FIG.4: ESD clamping (30KV contact)

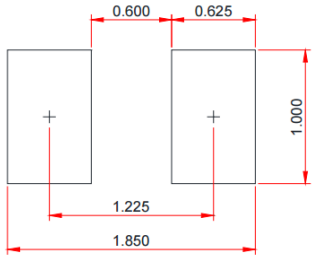


Package Outline Dimensions (DFN1610-2L)



Symbol	Millimeter		
	Min.	Typ.	Max.
A	0.45	0.50	0.55
A1	0.00	0.02	0.05
b	0.85	0.90	0.95
c	0.08	0.12	0.18
D	1.55	1.60	1.65
e	1.1BSC		
E	0.95	1.00	1.05
L	0.35	0.40	0.45
L1	0.06BSC		

Recommend Land Pattern (Unit: mm)



Note:
This recommended land pattern is for reference purpose only.

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