Leiditech

SMDA24TN

HIGH SURGETVS DIODE FOR LATCH-UP PROTECTION

Features

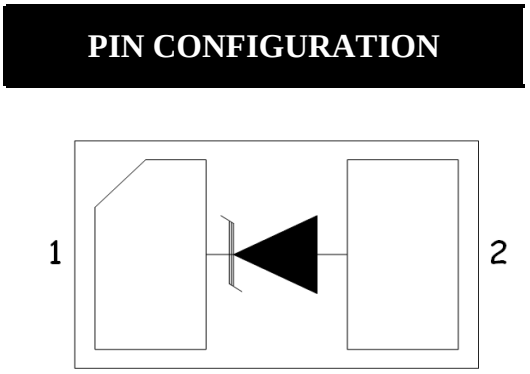
- 1700 Watts Peak Pulse Power per Line (tp=8/20μs)
- Protects One Unidirectional Line
- Low clamping voltage
- Working voltages : 24V
- Low leakage current
- IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ηs)
- IEC61000-4-5 (LIGHTING) 28A (8/20 μ s)

Dimensions DFN1610TN

Applications

- Cellular Phones
- I2C Bus Protection
- Parallel & Serial Port Protection
- Personal Digital Assistant (PDA)
- Microcontroller Input Protection
- Charager Protection

Pin Configuration



Mechanical Characteristics

- DFN1610TN Package
- Molding Compound Flammability Rating : UL 94V-O
- Weight 3.5 Millgrams (Approximate)
- Quantity Per Reel : 3,000pcs
- Reel Size : 7 inch
- Lead Finish : Lead Free

Absolute Maximum Ratings(Tamb=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppp	1700	W
ESD per IEC 61000−4−2 (Air)	V_{ESD}	±30	Kv
ESD per IEC 61000−4−2 (Contact)		±30	
Operating Temperature Range	T_J	-55 to +125	℃
Storage Temperature Range	T_{STJ}	-55 to +150	℃

Electrical Characteristics (TA=25°C unless otherwise specified)

Part Number	Device Marking	V_{RWM} (V)	V_{BR} (V)	I_T (mA)	V_C @1A	Vc		I_R μA (Max)	C (Pf) (Typ.)
						(Max)	(@A)		
SMDA24TN	UTE	24	26.7	1	29.5	45	28	220	-

Characteristic Curves

Figure 1. 8 x 20 μs Waveform

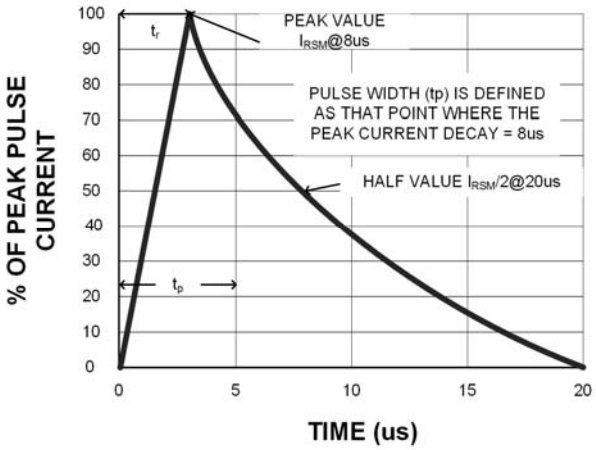


Figure 2. Power Derating Curve

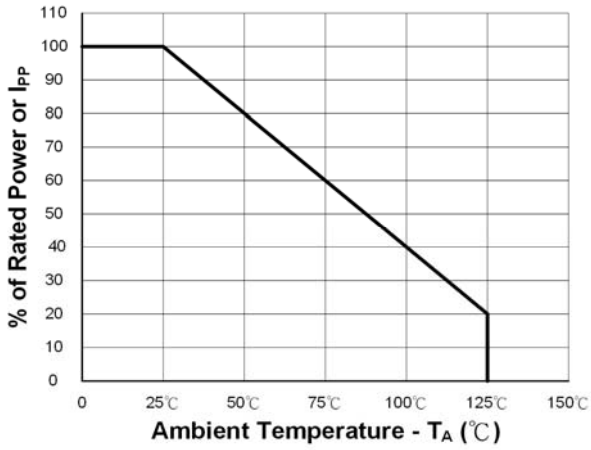


Figure 3. Clamping Voltage vs. Peak Pulse Current (tp=8/20us)

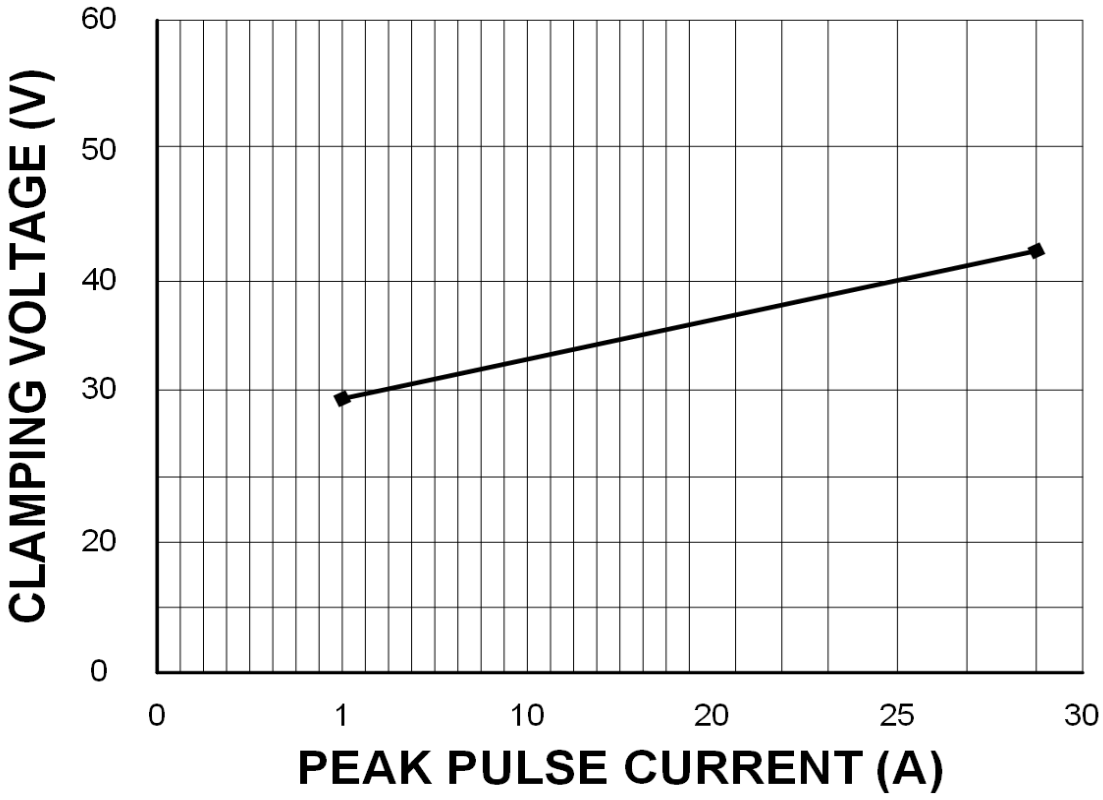


Figure 4. Typic Reverse Leakage vs. Temperature

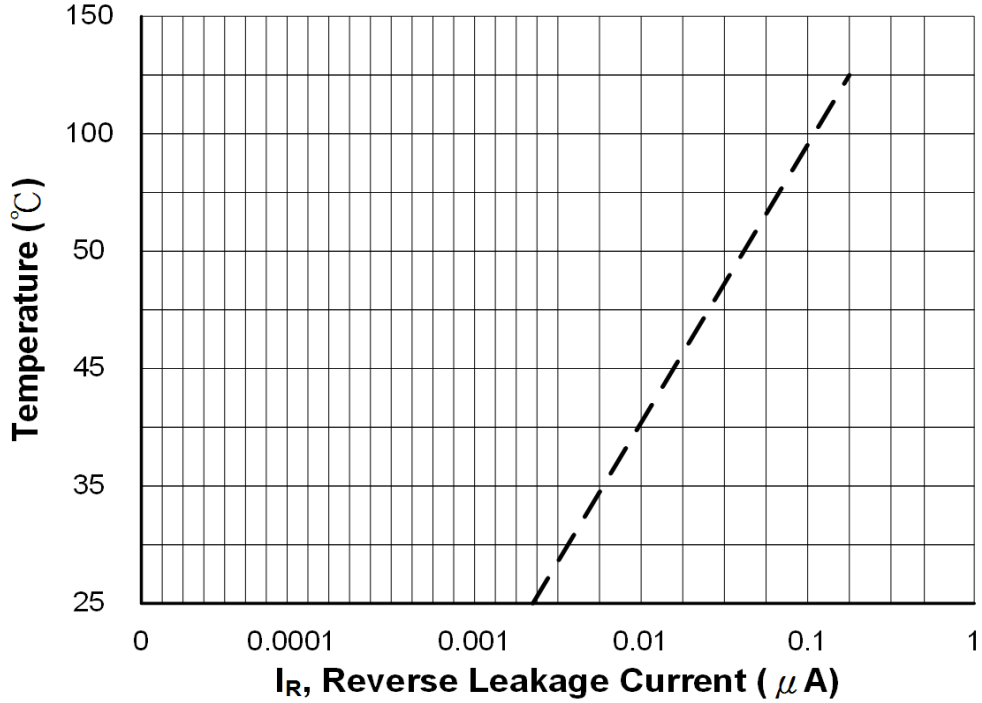
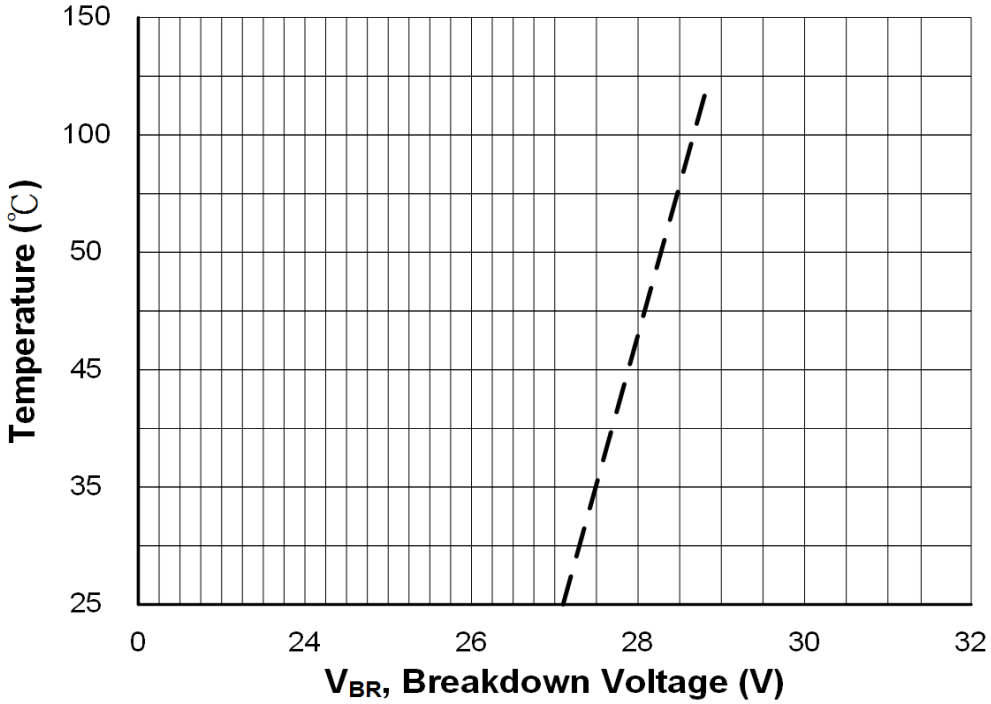
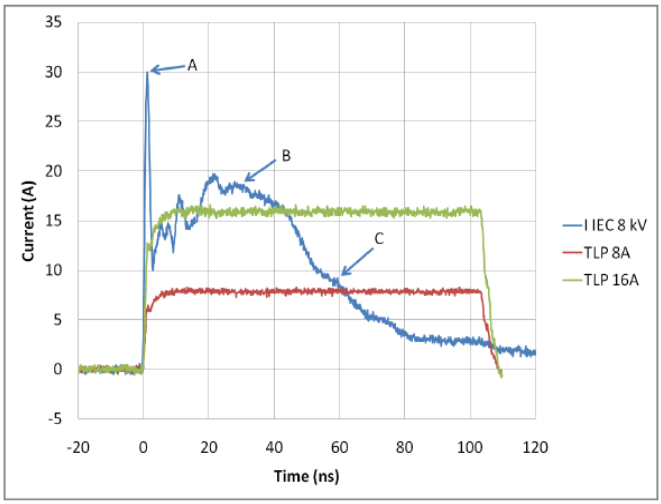


Figure 5. Typic Breakdown Voltage vs. Temperature



Transmission Line Pulse (TLP)

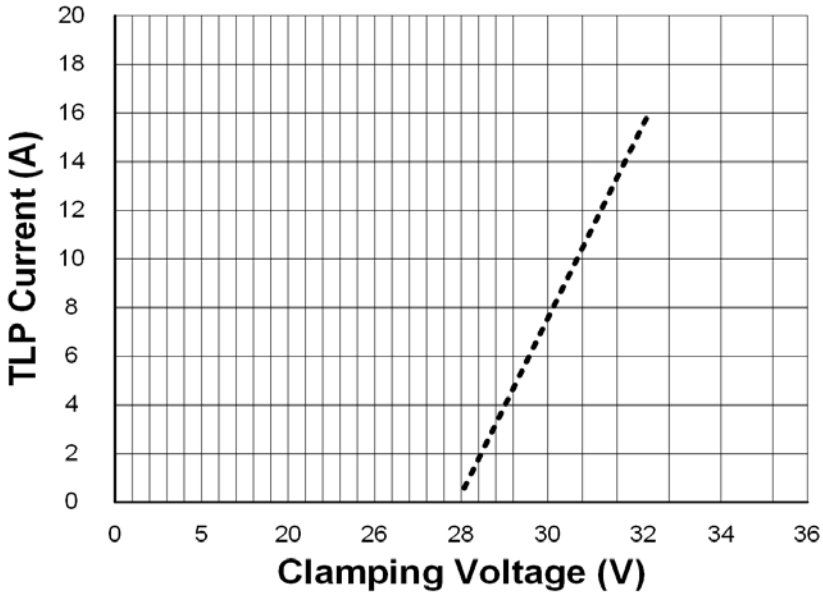
Transmission Line Pulse (TLP) is a measurement technique used in the Electrostatic Discharge (ESD) arena to characterize performance attributes of devices under ESD stresses. TLP is able to obtain current versus voltage (I−V) curves in which each data point is obtained with a 100 ns long pulse, with currents up to 40 A. TLP was first used in the ESD field to study human body model (HBM) in integrated circuits, but it is an equally valid tool in the field of system level ESD. The applicability of TLP to system level ESD is illustrated in Figure 1, which compares an 8 kV IEC 61000−4−2 current waveform with TLP current pulses of 8 and 16 A. The current levels and time duration for the pulses are similar and the initial rise time for the TLP pulse is comparable to the rise time of the IEC 61000−4−2's initial current spike. This application note will give a basic introduction to TLP measurements and explain the datasheet parameters extracted from TLP for Yeashin Technology's protection products.



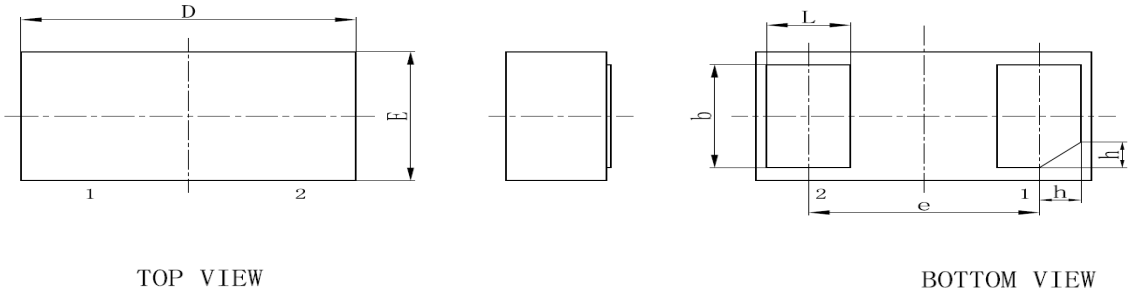
Comparison of a Current Waveform of IEC 61000−4−2 with TLP Pulses at 8 and 16 A.

The IEC 61000−4−2 ESD waveforms is true to the Standard and is shown here as captured on an oscilloscope. The points A, B, and C show the points on the waveforms specified in IEC 61000−4−2.

Figure 6. TLP Characteristic

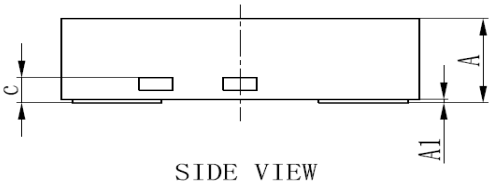


DFN1610TN Package Outline Drawing



TOP VIEW

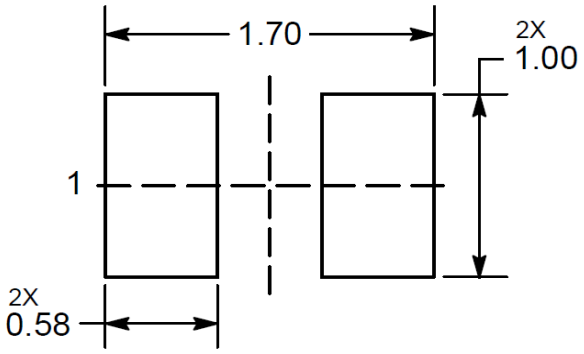
BOTTOM VIEW



SIDE VIEW

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0. 45	0. 50	0. 55
A1	——	0. 02	0. 05
b	0. 75	0. 80	0. 85
c	0. 10	0. 15	0. 20
D	1. 55	1. 60	1. 65
e	1. 10BSC		
E	0. 95	1. 00	1. 05
L	0. 35	0. 40	0. 45
h	0. 15	0. 20	0. 25

Suggested Land Pattern



Note:
Controlling dimensions are in millimeter (mm)

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