

Features

- 2800 Watts Peak Pulse Power per Line ($t_p=8/20\mu s$)
- Protects One Unidirectional Line
- Low Clamping Voltage
- Working Voltages : 24V
- Low Leakage Current
- IEC61000-4-2 (ESD) $\pm 30kV$ (air), $\pm 30kV$ (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- IEC61000-4-5 (LIGHTING) 58A (8/20 μs)

Applications

- Cellular Phones
- ADSL and VDSL
- Parallel & Serial Port Protection
- Personal Digital Assistant (PDA)
- Microcontroller Input Protection
- Charager Protection

Mechanical Characteristics

- DFN2020SP2 Package
- Molding Compound Flammability Rating : UL 94V-0
- Quantity Per Reel : 3,000pcs
- Reel Size : 7 inch
- Lead Finish : Lead Free

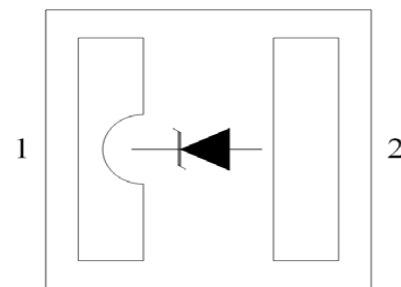
Absolute Maximum Ratings (T_{amb}=25°C unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|----------------------------------|------------------|-------------|------|
| Peak Pulse Power (8/20 μs) | P _{pp} | 2800 | 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 | °C |
| Storage Temperature Range | T _{STJ} | -55 to +150 | °C |

Dimensions DFN2020SP2



Pin Configuration



Electrical Characteristics($T_A=25^{\circ}\text{C}$ unless otherwise specified)

| Part Number | Device Marking | V_{RWM} (V) | V_{BR} (V) | I_T (mA) | V_C @1A | V_C | | I_R μA (Max) | C (Pf) (Typ.) |
|-------------|----------------|------------------|-----------------|---------------|--------------|-------|------|---------------------------------|---------------------|
| | | | | | | (Max) | (@A) | | |
| SMDA24P2 | SMDA24SP2 | 24 | 26.7 | 1 | 29.5 | 48.5 | 58 | 1 | - |

TYPIC CHARACTERISTICS

Figure 1. 8 x 20 μs Waveform

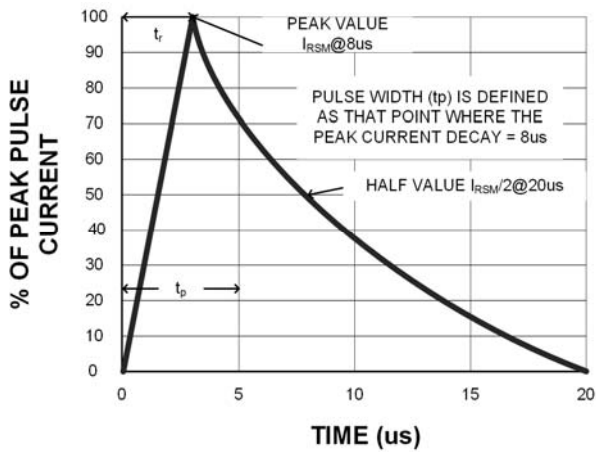


Figure 2. Power Derating Curve

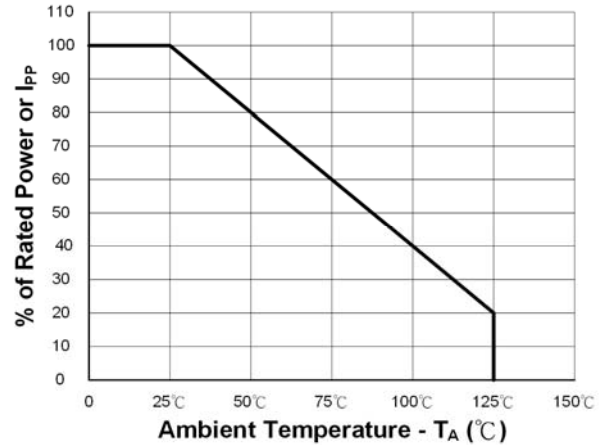
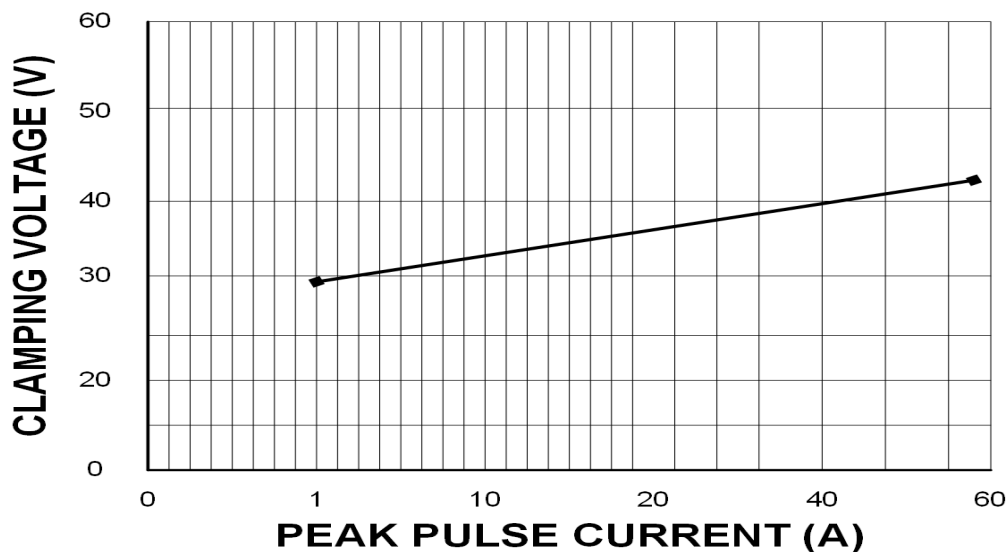


Figure 3. Clamping Voltage vs. Peak Pulse Current ($t_p=8/20\mu s$)



TYPIC CHARACTERISTICS

Figure 4. Typical Reverse Leakage vs. Temperature

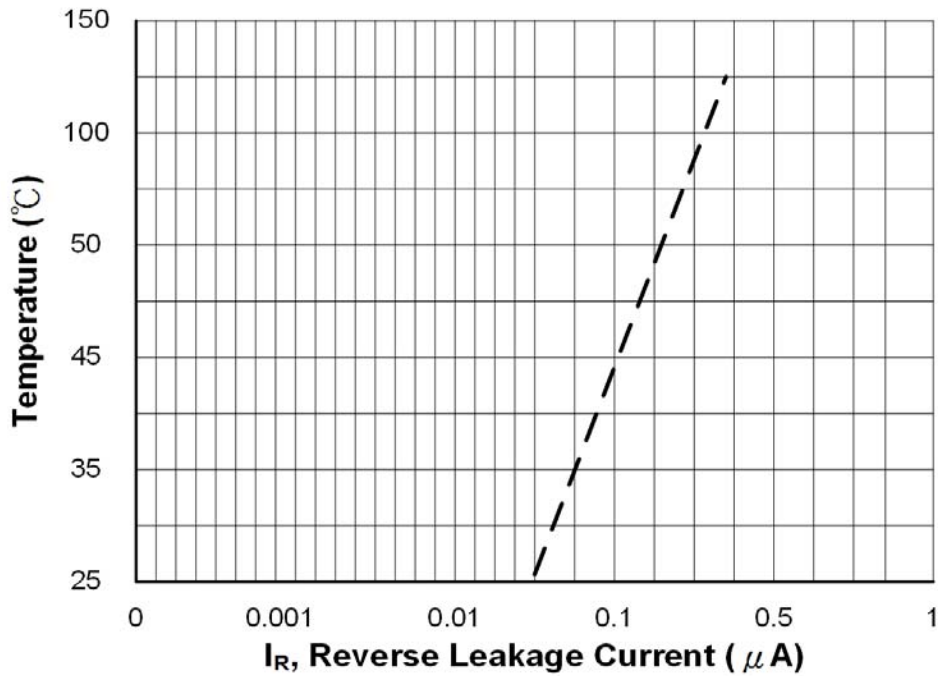
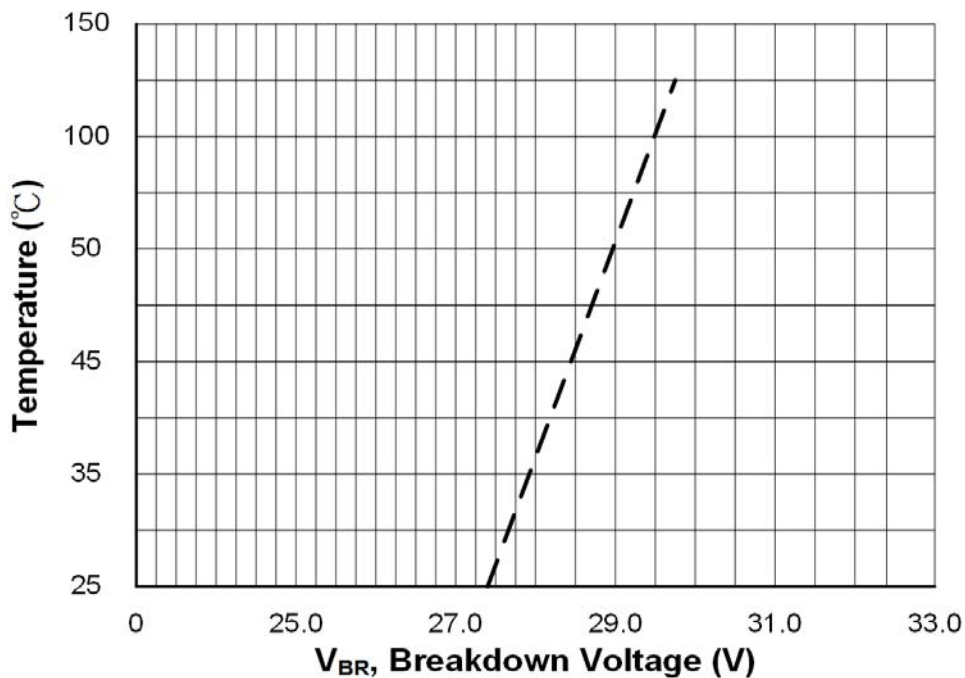
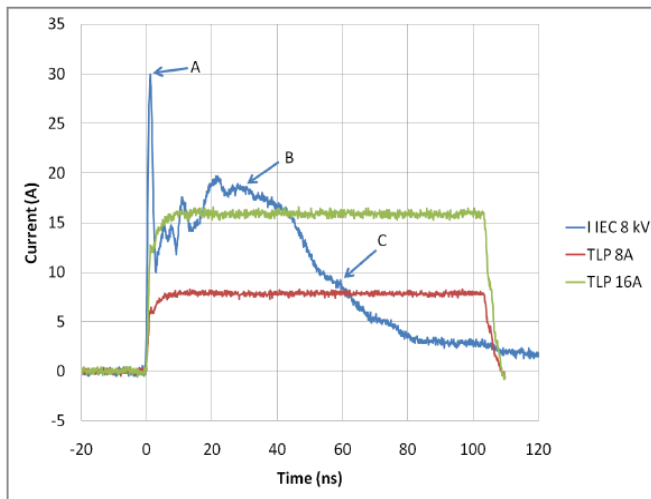


Figure 5. Typical Breakdown Voltage vs. Temperature



Transmission Line Pulse (TLP)

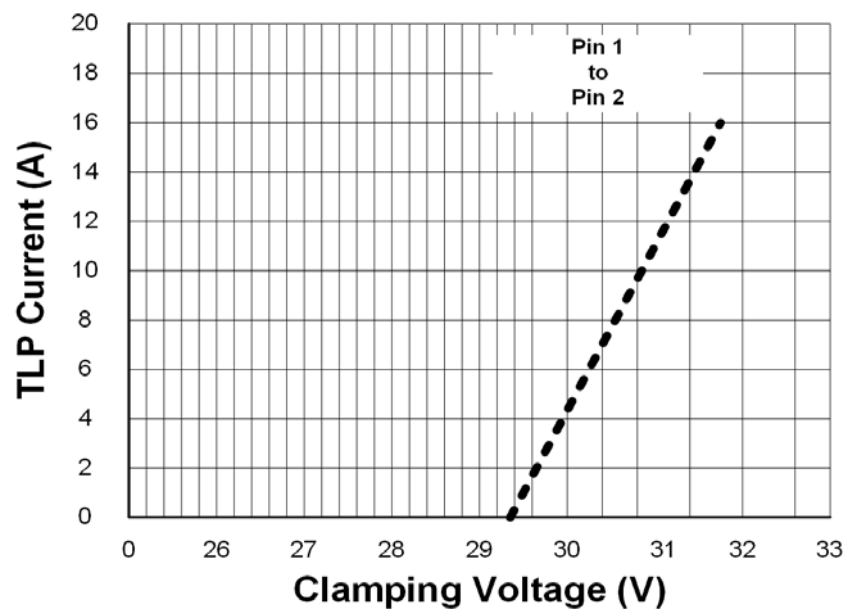
Transmission Line Pulse (TLP) is a measurement technique used in the Electrostatic Discharge (ESD) arena to characterize performance attributes of devices under ESD stresses. TLP is able to obtain current versus voltage (I-V) curves in which each data point is obtained with a 100 ns long pulse, with 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 SDI Technology's protection products.



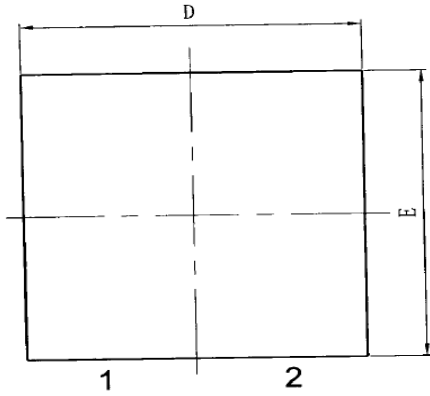
Comparison of a Current Waveform of IEC 61000-4-2 with TLP Pulses at 8 and 16 A.

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.

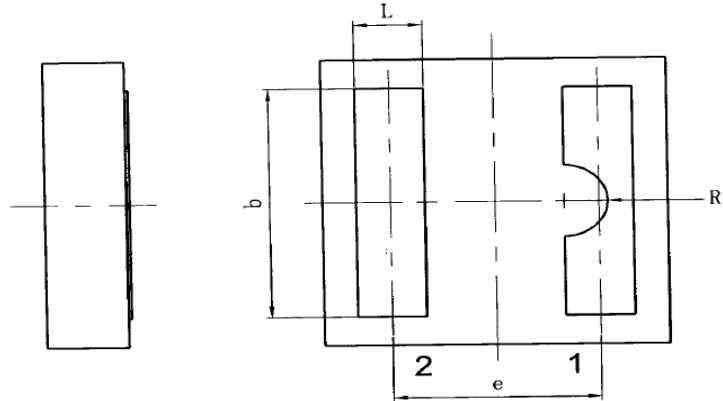
Figure 6. TLP Characteristic



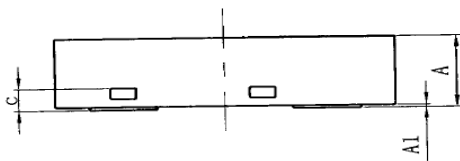
DFN2020SP2 PACKAGE OUTLINE & DIMENSIONS



TOP VIEW



BOTTOM VIEW



| SYMBOL | MILLIMETER | | |
|---------------|-------------|------|------|
| | MIN | NOM | MAX |
| A | 0.45 | 0.50 | 0.55 |
| A1 | — | 0.02 | 0.05 |
| b | 1.55 | 1.60 | 1.65 |
| c | 0.10 | 0.15 | 0.20 |
| D | 1.90 | 2.00 | 2.10 |
| e | 1.20BSC | | |
| E | 1.90 | 2.00 | 2.10 |
| L | 0.35 | 0.40 | 0.45 |
| R | 0.20 | 0.25 | 0.30 |
| 载体尺寸 (Mil) | 43X71/22X71 | | |