

### Description

The AU1271D1F-T is an Uni-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power lines. The AU1271D1F-T complies with the IEC 61000-4-2 (ESD) with  $\pm 30\text{kV}$  air and  $\pm 30\text{kV}$  contact discharge. It is assembled into a SOD-123FL lead-free package. The small size and high ESD/surge protection make AU1271D1F-T an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

### Features

- Protects one data or power line
- Ultra low leakage: nA level
- Operating voltage: 12V
- Ultra low clamping voltage
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 30\text{kV}$
    - Contact discharge:  $\pm 30\text{kV}$
  - IEC61000-4-5 (Lightning) 150A (8/20 $\mu\text{s}$ )
- RoHS Compliant

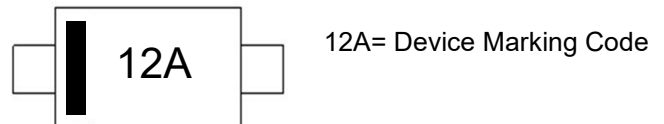
### Mechanical Characteristics

- Package: SOD-123FL
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound
- Terminal Connections: See Diagram Below
- Marking Information: See Below

### Applications

- Fast-charge battery chargers
- Power management system
- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals

### Marking Information



### Pin Configuration



Circuit and Pin Schematic

### Ordering Information

| Part Number | Packaging        | Reel Size |
|-------------|------------------|-----------|
| AU1271D1F-T | 3000/Tape & Reel | 7 inch    |

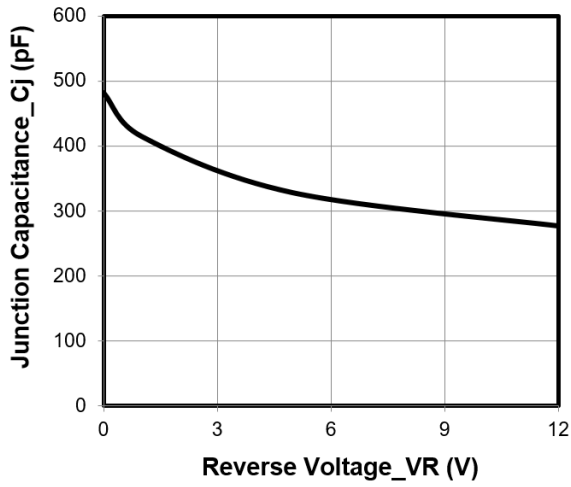
**Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

| Parameter                                | Symbol | Value       | Unit               |
|--|--------|-------------|--------------------|
| Peak Pulse Power (8/20 $\mu\text{s}$ )   | Ppk    | 5250        | W                  |
| Peak Pulse Current (8/20 $\mu\text{s}$ ) | Ipp    | 150         | A                  |
| ESD per IEC 61000-4-2 (Air)              | VESD   | $\pm 30$    | kV                 |
| ESD per IEC 61000-4-2 (Contact)          |        | $\pm 30$    |                    |
| Operating Temperature Range              | TJ     | -40 to +125 | $^{\circ}\text{C}$ |
| Storage Temperature Range                | Tstg   | -40 to +125 | $^{\circ}\text{C}$ |

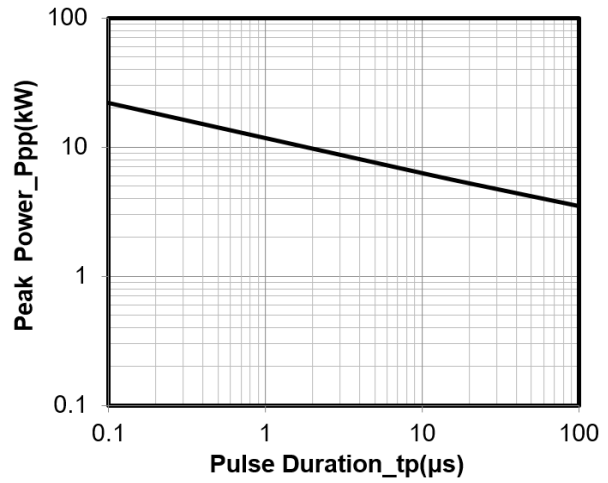
**Electrical Characteristics ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

| Parameter               | Symbol | Min  | Typ | Max | Unit          | Test Condition                                      |
|-------------------------|--------|------|-----|-----|---------------|---|
| Reverse Working Voltage | VRWM   |      |     | 12  | V             |   |
| Breakdown Voltage       | VBR    | 12.5 |     |     | V             | IT = 1mA  |
| Reverse Leakage Current | IR     |      |     | 1.0 | $\mu\text{A}$ | VRWM = 12V  |
| Clamping Voltage        | VC     |      |     | 16  | V             | I <sub>PP</sub> = 1A (8 x 20 $\mu\text{s}$ pulse)   |
| Clamping Voltage        | VC     |      |     | 35  | V             | I <sub>PP</sub> = 150A (8 x 20 $\mu\text{s}$ pulse) |
| Junction Capacitance    | CJ     |      | 500 |     | pF            | VR = 0V, f = 1MHz                                   |

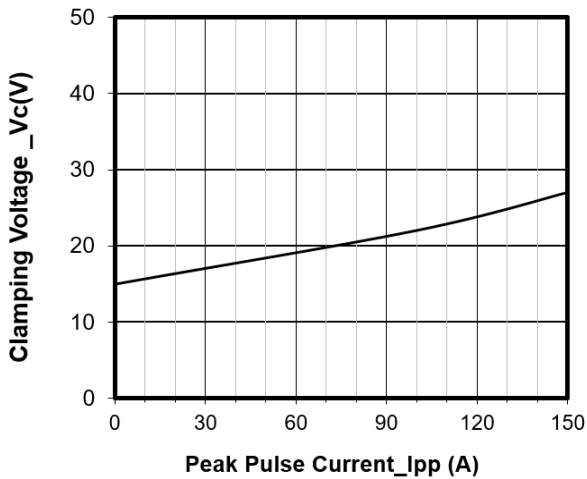
**Typical Performance Characteristics (T<sub>A</sub>=25°C unless otherwise Specified)**



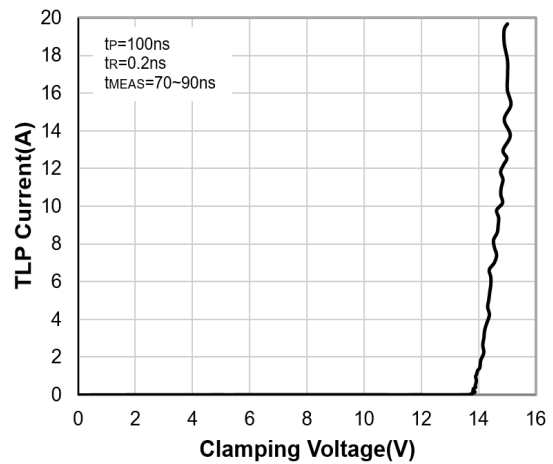
**Junction Capacitance vs. Reverse Voltage**



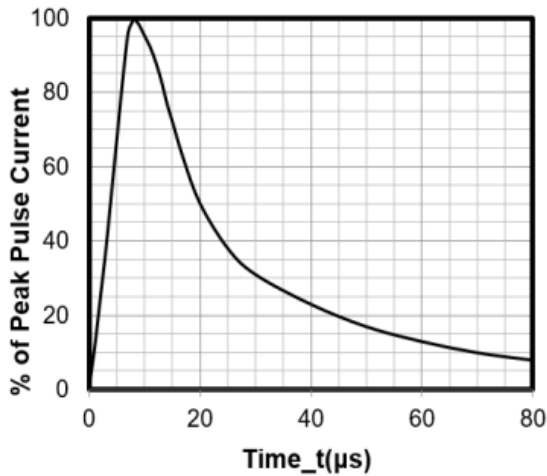
**Peak Pulse Power vs. Pulse Time**



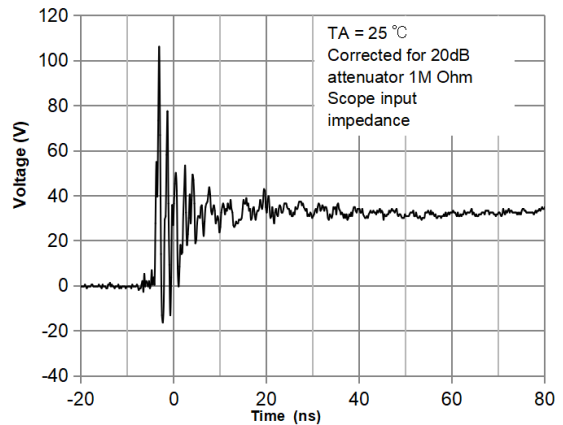
**Clamping Voltage vs. Peak Pulse Current (tp = 8/20μs)**



**TLP Curve**

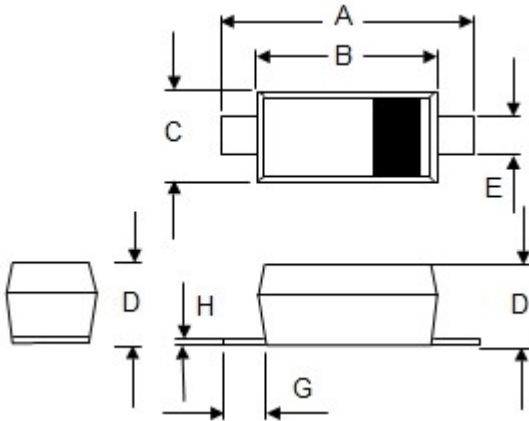


**8 X 20μs Pulse Waveform**



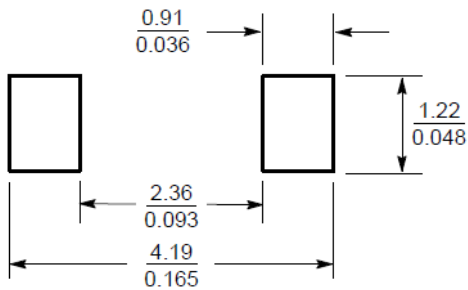
**ESD Clamping Voltage  
8 kV Contact per IEC61000-4-2**

### SOD-123FL Package Outline Drawing



| SYM | DIMENSIONS  |      |        |       |
|-----|-------------|------|--------|-------|
|     | MILLIMETERS |      | INCHES |       |
|     | MIN         | MAX  | MIN    | MAX   |
| A   | 3.40        | 3.95 | 0.142  | 0.155 |
| B   | 2.50        | 2.90 | 0.098  | 0.114 |
| C   | 1.40        | 1.95 | 0.055  | 0.077 |
| D   | 0.80        | 1.00 | 0.031  | 0.040 |
| E   | 0.50        | 1.10 | 0.020  | 0.043 |
| G   | 0.25        | —    | 0.010  | —     |
| H   | —           | 0.20 | —      | 0.008 |

### Suggested Land Pattern



SCALE 10:1 ( $\frac{\text{mm}}{\text{inches}}$ )

### Contact Information

Applied Power Microelectronics Inc.

Website: <http://www.appliedpowermicro.com>

Email: [sales@appliedpowermicro.com](mailto:sales@appliedpowermicro.com)

Phone: +86 (0519) 8399 3606