# 1-Line Uni-directional TVS Diode

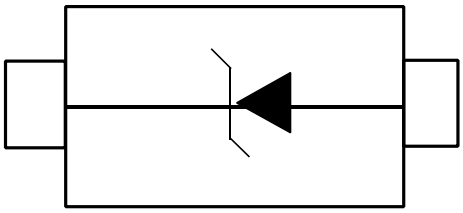
## Description

The PESDU0771D1F 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 PESDU0771D1F complies with the IEC 61000-4-2 (ESD) with ±30kV air and ± 30kV contact discharge. It is assembled into a SOD-123FL lead-free package. The small size and high ESD/surge protection make PESDU0771D1F 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: 7V
- Ultra low clamping voltage
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±30kV
    - Contact discharge: ±30kV
  - IEC61000-4-5 (Lightning) 200A (8/20μs)
- RoHS Compliant

## Pin Configuration



Circuit and Pin Schematic

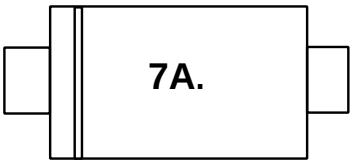
## Mechanical Characteristics

- Package: SOD-123FL
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- 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




**7A.**= Device Marking Code

## Ordering Information

| Part Number | Packaging | Real Size |
|---|---|---|
| PESDU0771D1F | 3000/Tape & Reel | 7 inch |

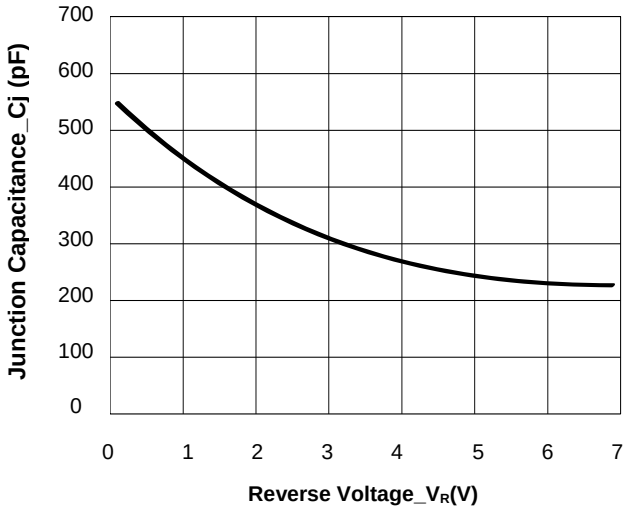
## Absolute Maximum Ratings ($T_A$=25°C unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Peak Pulse Power (8/20μs) | $P_{pk}$ | 3600 | W |
| Peak Pulse Current (8/20μs) | $I_{pp}$ | 200 | A |
| ESD per IEC 61000−4−2 (Air)<br>ESD per IEC 61000−4−2 (Contact) | $V_{ESD}$ | ±30<br>±30 | kV |
| Operating Temperature Range | $T_J$ | −55 to +125 | °C |
| Storage Temperature Range | $T_{stg}$ | −55 to +150 | °C |

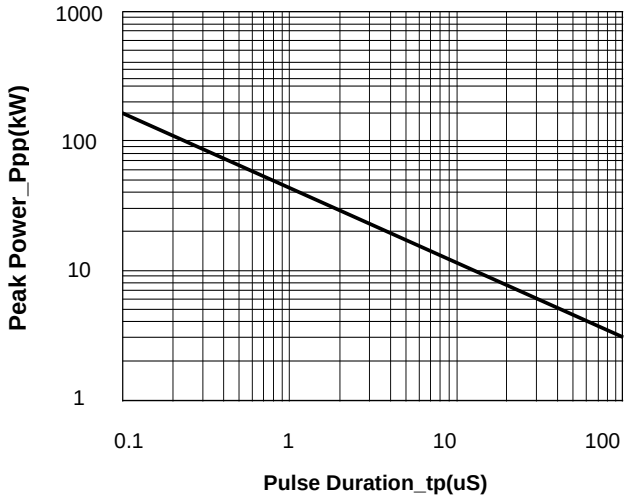
## Electrical Characteristics ($T_A$=25°C unless otherwise specified)

| Parameter | Symbol | Min | Typ | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Reverse Working Voltage | $V_{RWM}$ | | | 7 | V | |
| Breakdown Voltage | $V_{BR}$ | 7.5 | | | V | $I_T$ = 1mA |
| Reverse Leakage Current | $I_R$ | | | 6 | uA | $V_{RWM}$ = 7V |
| Clamping Voltage | $V_C$ | | | 9 | V | $I_{PP}$ = 5A (8 x 20μs pulse) |
| Clamping Voltage | $V_C$ | | | 22.5 | V | $I_{PP}$ = 200A (8 x 20μs pulse) |
| Junction Capacitance | $C_J$ | | | 800 | pF | $V_R$ = 0V, f = 1MHz |

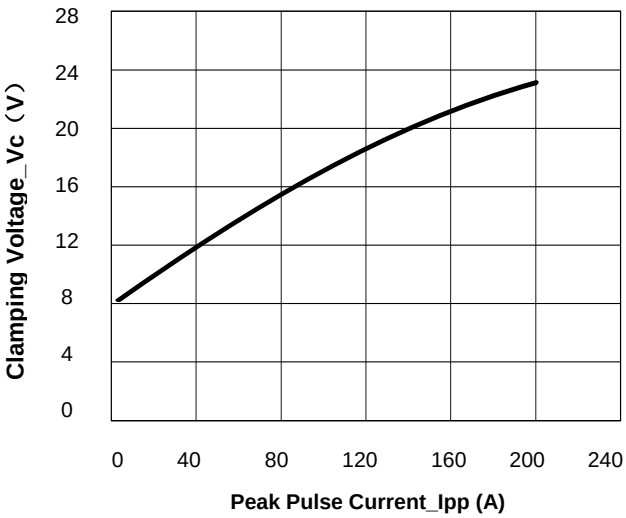
## Typical Performance Characteristics ($T_A$=25°C unless otherwise Specified)



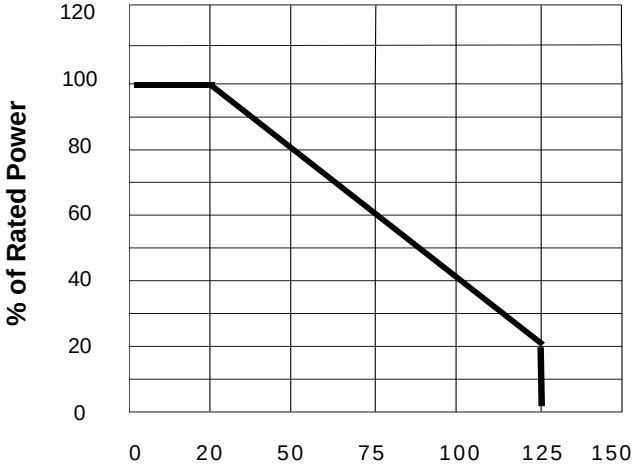

Junction Capacitance vs. Reverse Voltage



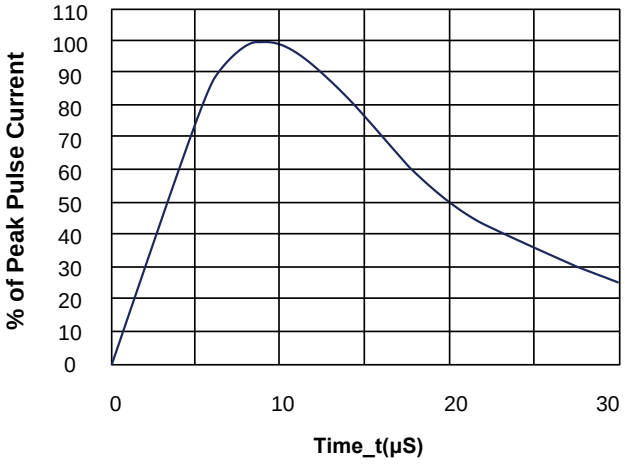

Peak Pulse Power vs. Pulse Time



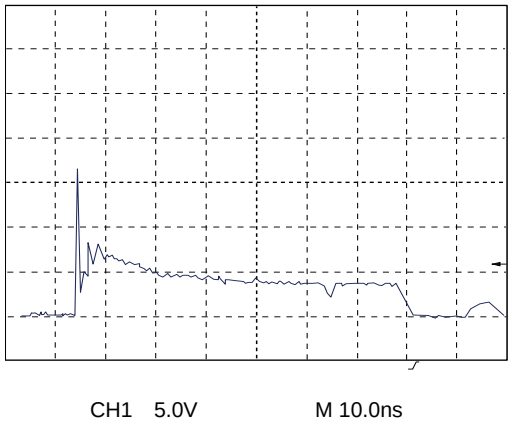

Clamping Voltage vs. Peak Pulse Current




Power Derating Curve



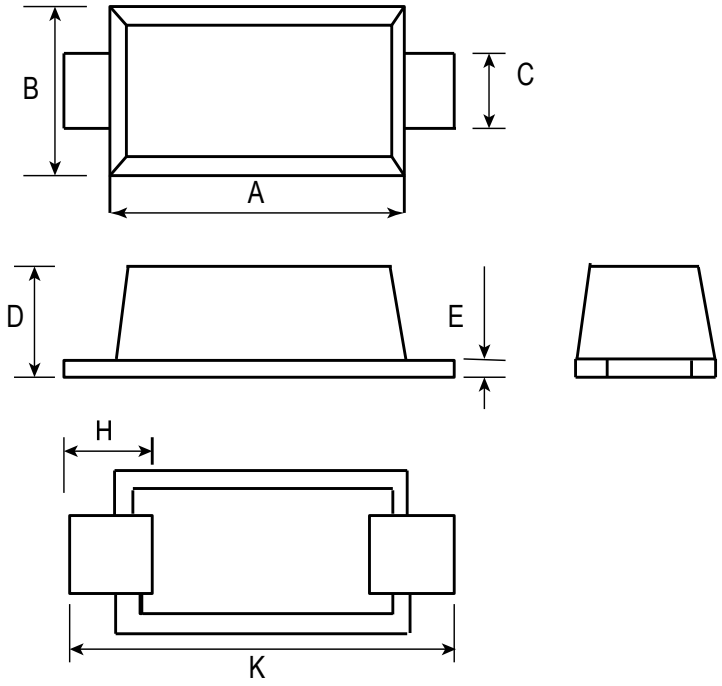

8 X 20uS Pulse Waveform




ESD Clamping Voltage

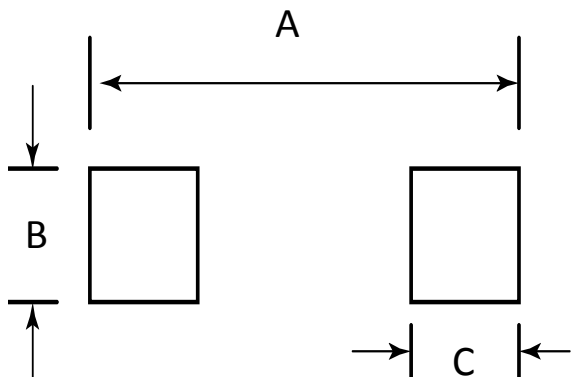
8 kV Contact per IEC61000−4−2

## SOD-123FL Package Outline Drawing




| DIM | Millimeters | | |
|---|---|---|---|
| | Min | Nom | Max |
| A | 2.70 | 2.80 | 2.90 |
| B | 1.80 | 1.90 | 2.00 |
| C | 0.80 | 1.00 | 1.20 |
| D | | | 1.40 |
| E | 0.10 | 0.20 | 0.30 |
| H | 0.35 | | 0.85 |
| K | 3.50 | | 3.90 |

## Suggested Land Pattern




| SYM | DIMENSIONS | |
|---|---|---|
| | MILLIMETERS | INCHES |
| A | 4.19 | 0.165 |
| B | 1.20 | 0.048 |
| C | 0.90 | 0.036 |