

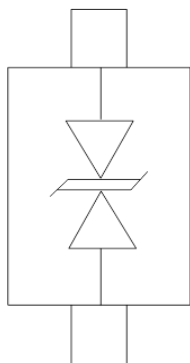
## Description

The AU0781D1F is an bi-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 AU0781D1F 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 AU0781D1F 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:  $\pm 30\text{kV}$
    - Contact discharge:  $\pm 30\text{kV}$
  - IEC61000-4-5 (Lightning) 200A (8/20 $\mu\text{s}$ )
- RoHS Compliant

## Pin Configuration



Circuit and Pin Schematic

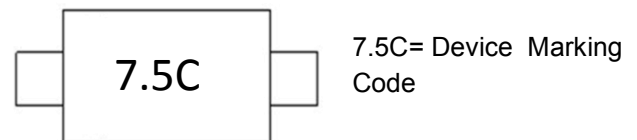
## Mechanical Characteristics

- Package: SOD-123FL
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- 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



## Ordering Information

Part Number	Packaging	Reel Size
AU0781D1F	3000/Tape & Reel	7 inch

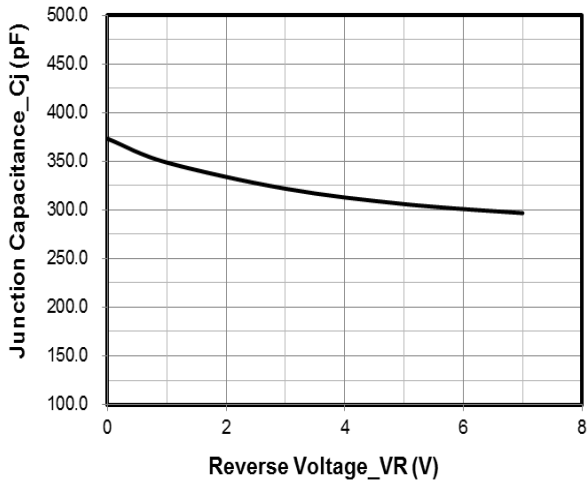
**Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	Ppk	5000	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	Ipp	200	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	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

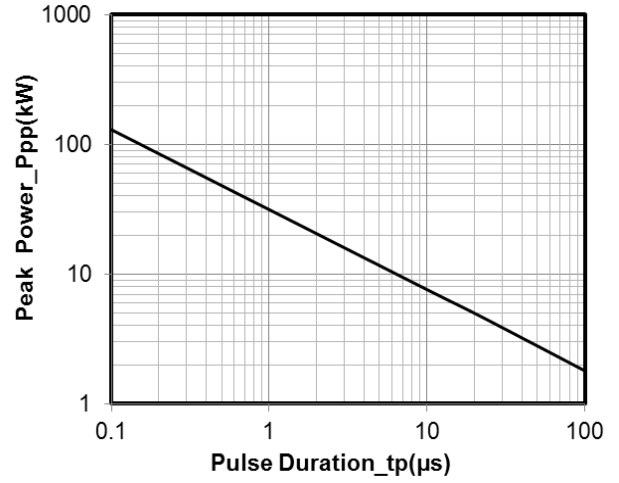
**Electrical Characteristics ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			7	V	
Breakdown Voltage	VBR	7.5			V	$I_T = 1\text{mA}$
Reverse Leakage Current	$I_R$			5	$\mu\text{A}$	$VRWM = 7\text{V}$
Clamping Voltage	VC			9	V	$I_{PP} = 5\text{A}$ (8 x 20 $\mu\text{s}$ pulse)
Clamping Voltage	VC		20	25	V	$I_{PP} = 200\text{A}$ (8 x 20 $\mu\text{s}$ pulse)
Junction Capacitance	CJ		400		pF	$V_R = 0\text{V}$ , $f = 1\text{MHz}$

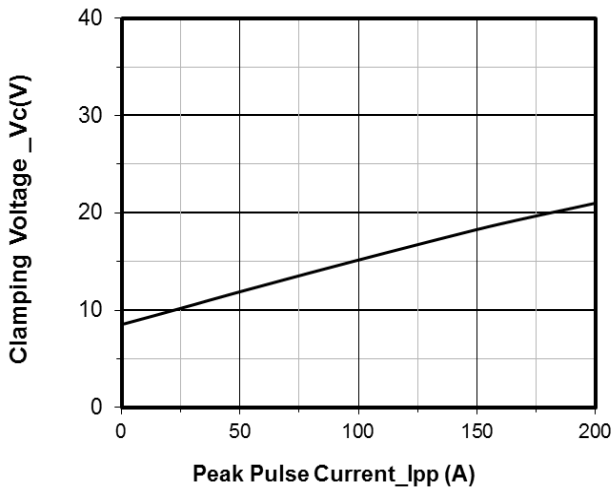
**Typical Performance Characteristics ( $T_A=25^\circ\text{C}$  unless otherwise Specified)**



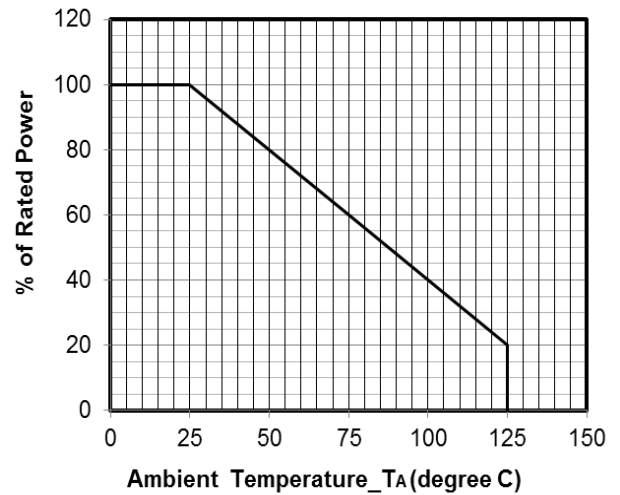
**Junction Capacitance vs. Reverse Voltage**



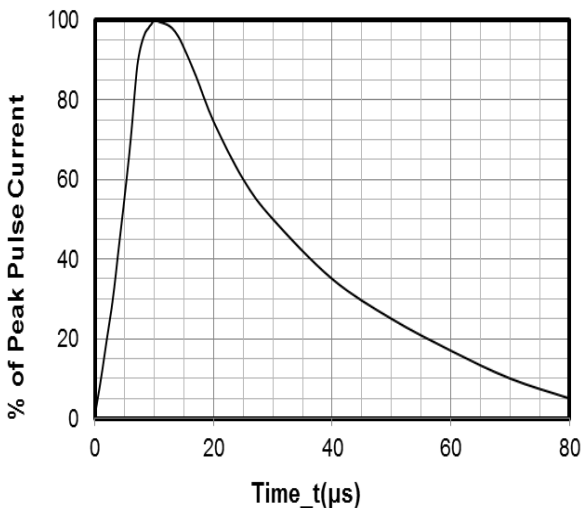
**Peak Pulse Power vs. Pulse Time**



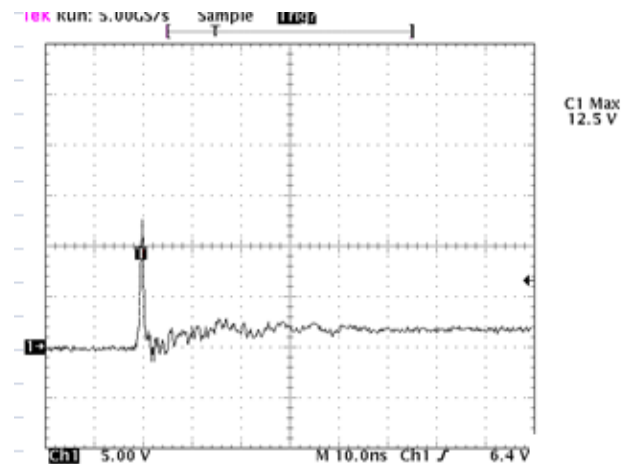
**Clamping Voltage vs. Peak Pulse Current**



**Power Derating Curve**



**8 X 20 $\mu\text{s}$  Pulse Waveform**

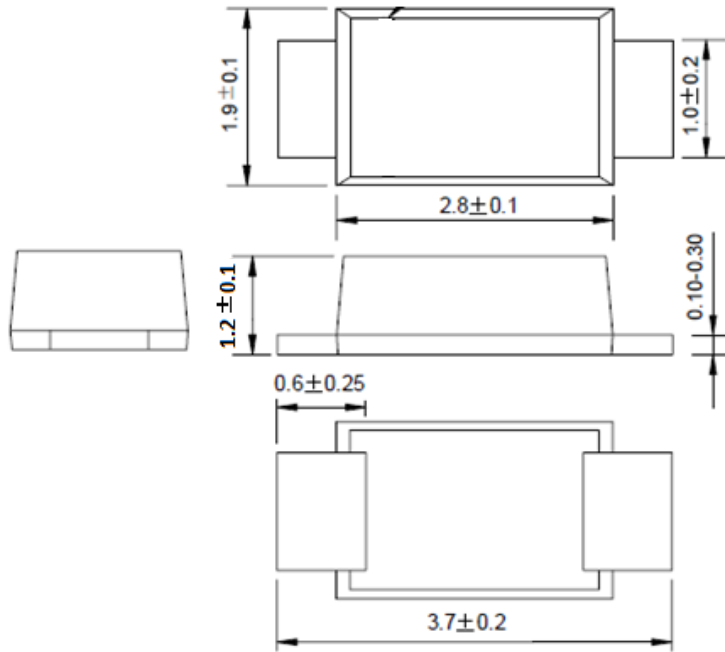


Note: Data is taken with a 10x attenuator

**ESD Clamping Voltage**

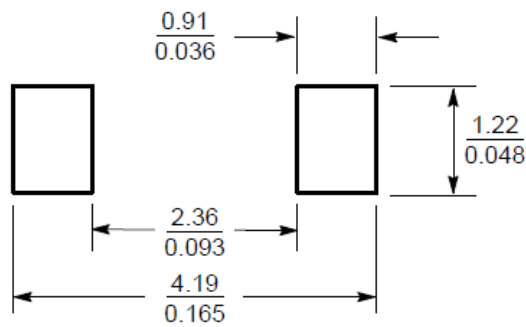
**8 kV Contact per IEC61000-4-2**

**SOD-123FL Package Outline Drawing**



Dimensions in millimeters

**Suggested Land Pattern**



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

**Contact Information**

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