

Description

The DC0781D5 is a bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast re-sponse time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The DC0781D5 complies with the IEC 61000-4-2 (ESD) with ± 30 kV air and ± 30 kV contact discharge. The small size and high ESD surge protection make DC0781D5 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
- ◆ Low clamping voltage
- ◆ 2-pin leadless package
- ◆ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: ± 30 kV
 - Contact discharge: ± 30 kV
 - IEC61000-4-5 (Lightning) 20A (8/20 μ s)
- ◆ ROHS Compliant

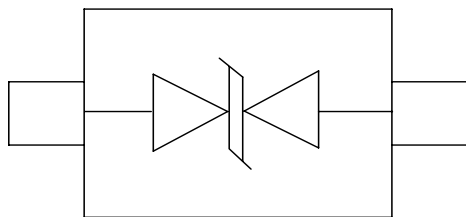
Mechanical Characteristics

- ◆ Package: SOD-523
- ◆ Case Material: "Green" Molding Compound.
- ◆ Moisture Sensitivity: Level 3 per J-STD-020
- ◆ Terminal Connections: See Diagram Below
- ◆ Marking Information: See Below

Applications

- ◆ Cellular Handsets and Accessories
- ◆ Personal Digital Assistants
- ◆ Notebooks and Handhelds
- ◆ Portable Instrumentation
- ◆ Digital Cameras
- ◆ Peripherals
- ◆ Audio Players
- ◆ Keypads, Side Keys, LCD Displays

Dimensions and Pin Configuration



Circuit and Pin Schematic

Marking Information



78= Device Marking Code

Ordering Information

| Part Number | Marking | Packaging | Reel Size |
|-------------|---------|------------------|-----------|
| DC0781D5 | 78 | 3000/Tape & Reel | 7 inch |

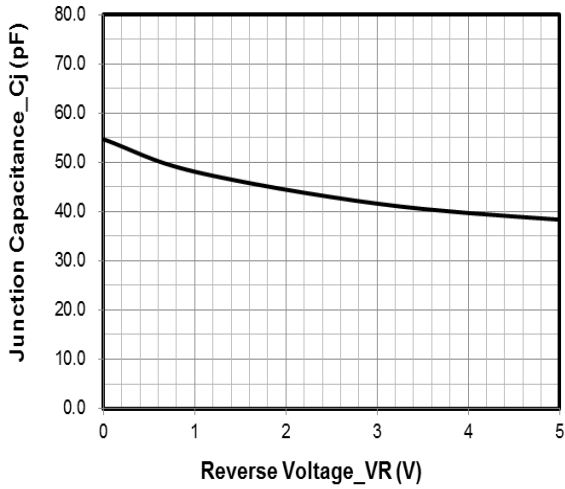
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|--|--------|-------------|--------------------|
| Peak Pulse Power (8/20 μs) | Ppk | 300 | W |
| Peak Pulse Current (8/20 μs) | Ipp | 20 | A |
| ESD per IEC 61000-4-2 (Air) | VESD | ± 30 | kV |
| ESD per IEC 61000-4-2 (Contact) | | ± 30 | |
| Operating Temperature Range | TJ | -55 to +125 | $^{\circ}\text{C}$ |
| Storage Temperature Range | Tstg | -55 to +150 | $^{\circ}\text{C}$ |

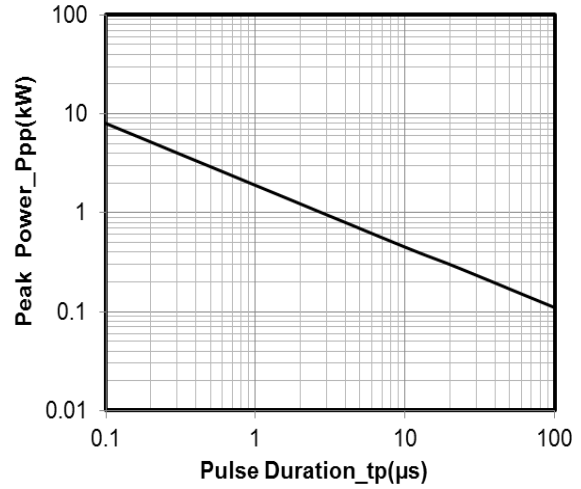
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

| Parameter | Symbol | Min | Typ | Max | Unit | Test Condition |
|-------------------------|--------|-----|-----|-----|---------------|--|
| Reverse Working Voltage | VRWM | | | 7 | V | |
| Breakdown Voltage | VBR | 7.5 | | | V | IT = 1mA |
| Reverse Leakage Current | IR | | | 0.5 | μA | VRWM = 7V |
| Clamping Voltage | VC | | | 10 | V | I _{PP} = 1A (8 x 20 μs pulse) |
| Clamping Voltage | VC | | | 15 | V | I _{PP} = 20A (8 x 20 μs pulse) |
| Junction Capacitance | CJ | | | 60 | pF | VR = 0V, f = 1MHz |

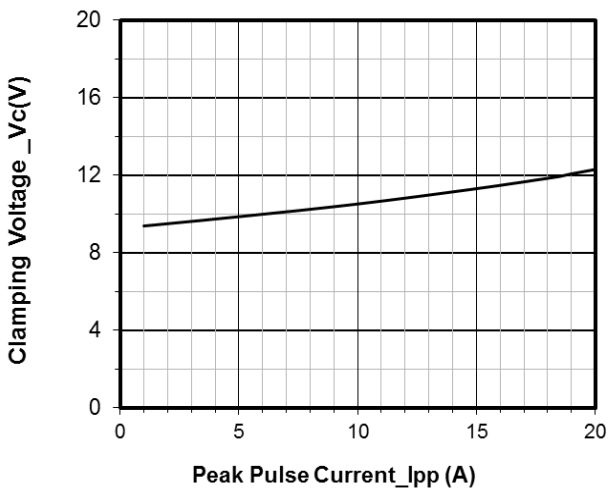
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



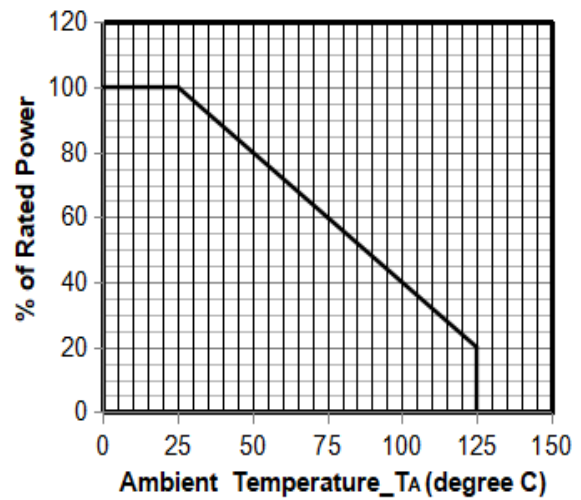
Junction Capacitance vs. Reverse Voltage



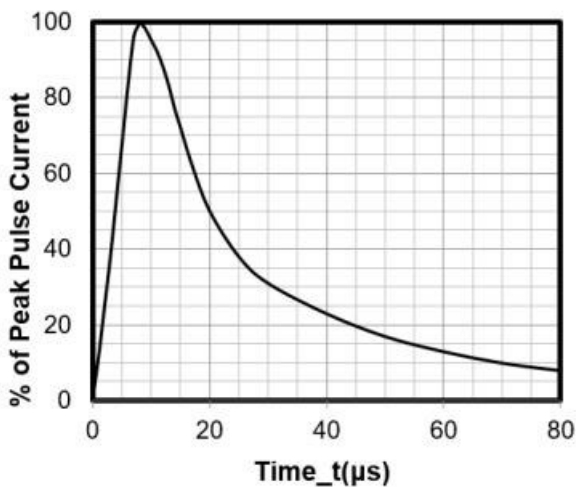
Peak Pulse Power vs. Pulse Time



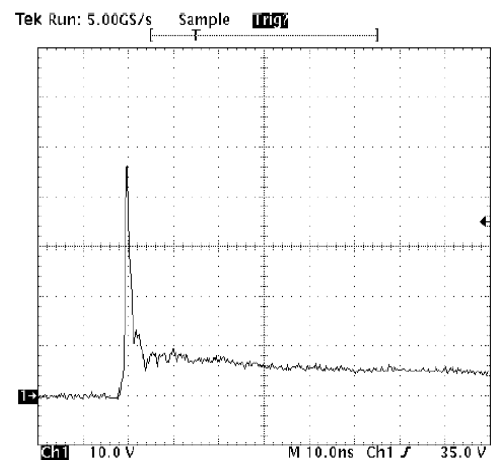
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20µs Pulse Waveform

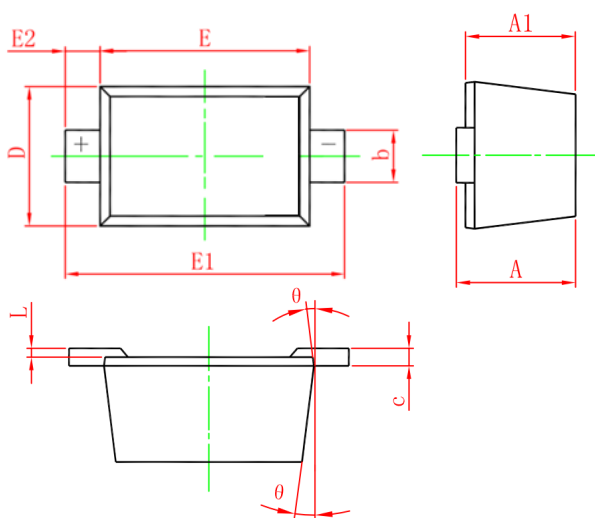


Note: Data is taken with a 10x attenuator

ESD Clamping Voltage

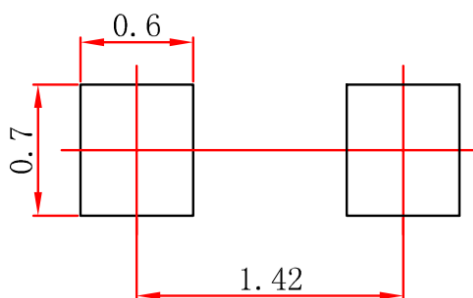
8 kV Contact per IEC61000-4-2

SOD-523 Package Outline Drawing



| SYM | DIMENSIONS | | | | | |
|-----|-------------|-----|------|----------|-----|-------|
| | MILLIMETERS | | | INCHES | | |
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.51 | -- | 0.77 | 0.020 | -- | 0.031 |
| A1 | 0.50 | -- | 0.70 | 0.020 | -- | 0.028 |
| b | 0.25 | -- | 0.35 | 0.010 | -- | 0.014 |
| c | 0.08 | -- | 0.15 | 0.003 | -- | 0.006 |
| D | 0.75 | -- | 0.85 | 0.030 | -- | 0.033 |
| E | 1.10 | -- | 1.30 | 0.043 | -- | 0.051 |
| E1 | 1.50 | -- | 1.70 | 0.059 | | 0.067 |
| E2 | 0.20REF | | | 0.008REF | | |
| L | 0.01 | -- | 0.07 | 0.001 | -- | 0.003 |
| Θ | 7° REF | | | 7° REF | | |

Suggested Land Pattern



Unit : mm

Contact Information

Changzhou D-first Electronics CO.,Ltd.

www.first-electronic.com

Email: xhf@first-electronic.cn

Phone: +86 (0519) -8817 1671