

Description

The AU1501D5 is an uni-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and ultra low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The AU1501D5 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 an ultra-small SOD-523 lead-free package. The small size and high ESD surge protection make AU1501D5 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

Features

- Protects one line
- Ultra low leakage: nA level
- Operating voltage: 15V
- 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) 11A (8/20 μs)
- RoHS Compliant

Mechanical Characteristics

- Package: SOD-523
- Case Material: “Green” Molding Compound.
- Lead Finish: Matte Tin
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

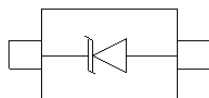
- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks, Desktops, Servers
- Portable Instrumentation
- Printers
- Analog Inputs
- Video equipment
- Communication systems
- Laser Diode Protection

Marking Information



15E = Device Marking Code
 Bar denotes cathode

Dimensions and Pin Configuration



SOD-523 (Top View)

Circuit and Pin Schematic

Ordering Information

| Part Number | Packaging | Reel Size |
|-------------|------------------|-----------|
| AU1501D5 | 3000/Tape & Reel | 7 inch |

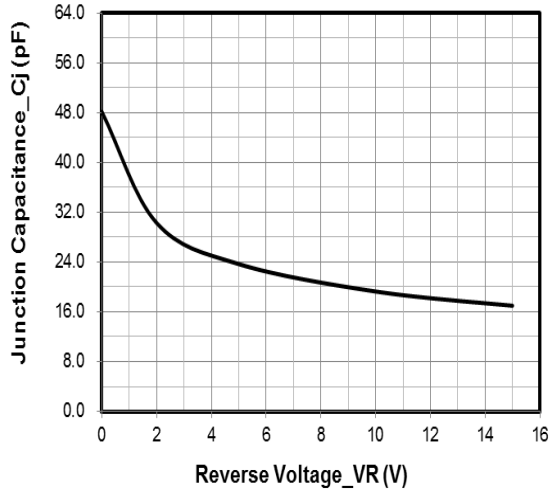
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|--|--------|-------------|--------------------|
| Peak Pulse Power (8/20 μs) | Ppk | 350 | W |
| Peak Pulse Current (8/20 μs) | Ipp | 11 | 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 | $^{\circ}\text{C}$ |

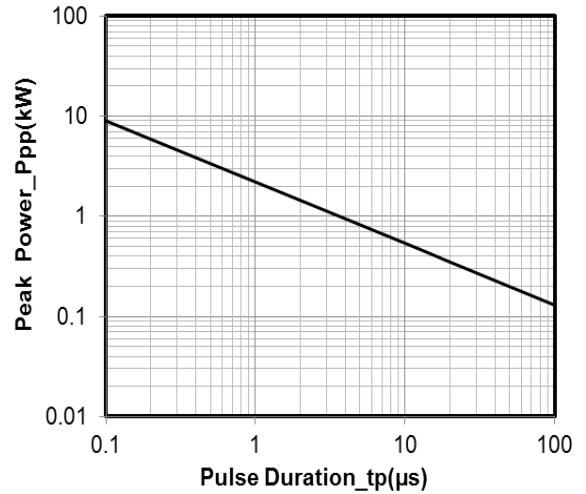
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

| Parameter | Symbol | Min | Typ | Max | Unit | Test Condition |
|-------------------------|--------|-----|-----|-----|---------------|--|
| Reverse Working Voltage | VRWM | | | 15 | V | |
| Breakdown Voltage | VBR | 18 | | | V | IT = 1mA |
| Reverse Leakage Current | IR | | | 0.2 | μA | VRWM = 15V |
| Clamping Voltage | VC | | | 23 | V | I _{PP} = 1A (8 x 20 μs pulse) |
| Clamping Voltage | VC | | | 32 | V | I _{PP} = 11A (8 x 20 μs pulse) |
| Junction Capacitance | CJ | | | 80 | pF | VR = 0V, f = 1MHz |

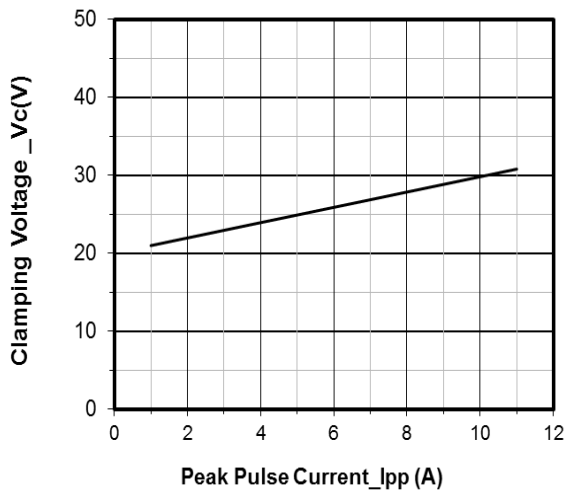
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



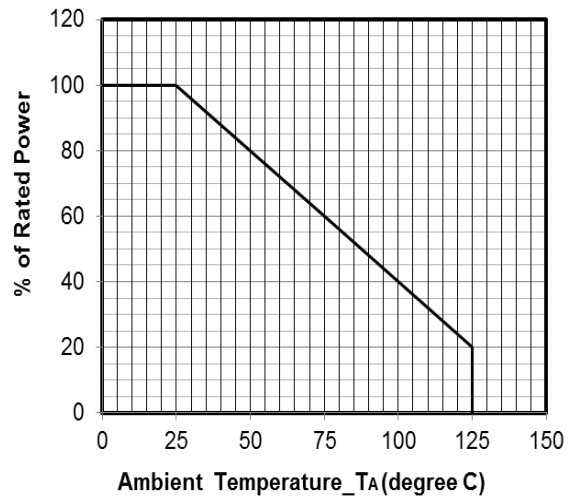
Junction Capacitance vs. Reverse Voltage



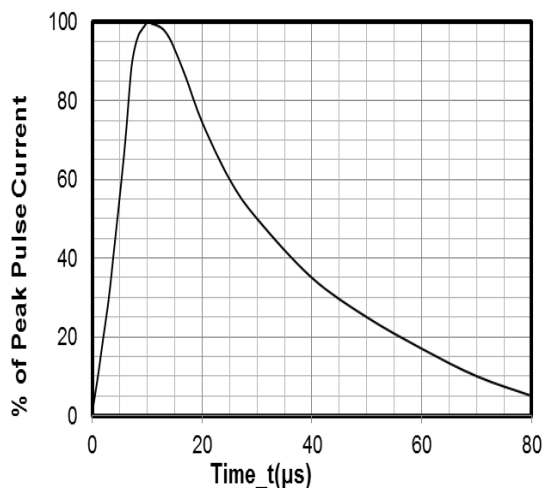
Peak Pulse Power vs. Pulse Time



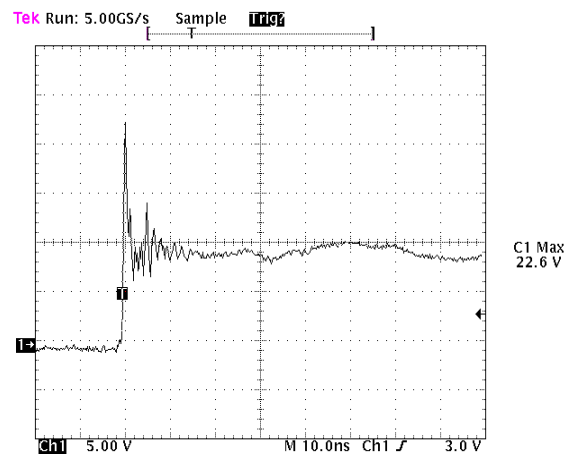
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve

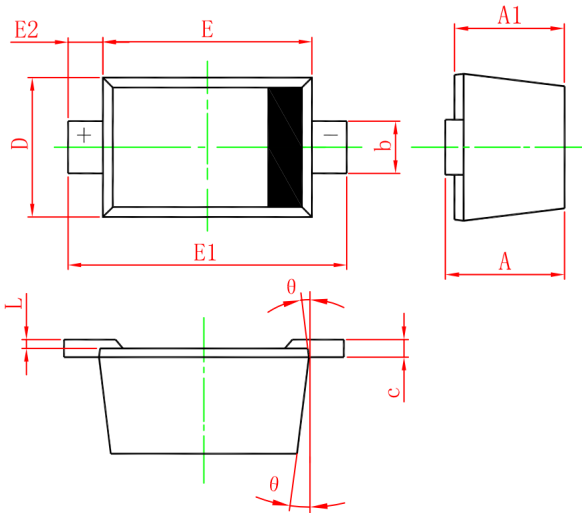


8 X 20μs Pulse Waveform



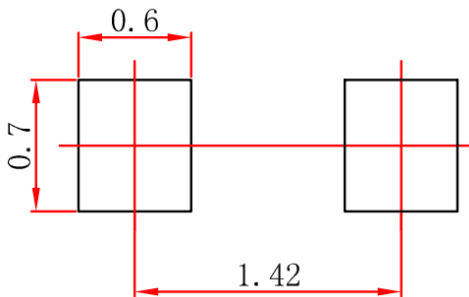
Note: Data is taken with a 10x attenuator
ESD Clamping Voltage
+8 kV Contact per IEC61000-4-2

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

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