

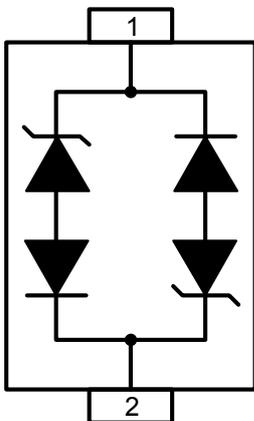
Description

The AR1211D3 is a 12V 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 high-speed data lines. The AR1211D3 has a low capacitance with a typical value at 1pF, and 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 lead-free SOD-323 package. The small size, low capacitance and high ESD surge protection make AR1211D3 an ideal choice to protect cell phone, wireless systems, and communication equipment.

Features

- 350W peak pulse power (8/20 μs)
- Ultra low capacitance: 1pF typical
- Ultra low leakage: nA level
- Operating voltage: 12V
- Low clamping voltage
- Protects one power line or data line
- 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) 14A (8/20 μs)
- RoHS Compliant

Dimensions and Pin Configuration



Circuit and Pin Schematic

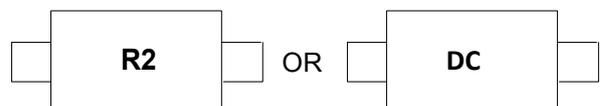
Mechanical Characteristics

- Package: SOD-323
- 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

- USB Ports
- Smart Phones
- Wireless Systems
- Ethernet 10/100/1000 Base T

Marking Information



Ordering Information

| Part Number | Packaging | Reel Size |
|-------------|------------------|-----------|
| AR1211D3 | 3000/Tape & Reel | 7 inch |

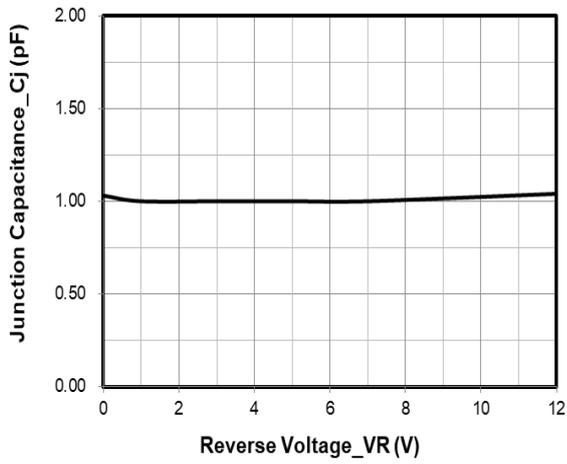
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|---------------------------------|------------------|-------------|------|
| Peak Pulse Power (8/20μs) | Ppk | 350 | W |
| Peak Pulse Current (8/20μs) | I _{PP} | 14 | A |
| ESD per IEC 61000-4-2 (Air) | V _{ESD} | ±30 | kV |
| ESD per IEC 61000-4-2 (Contact) | | ±30 | |
| Operating Temperature Range | T _J | -55 to +125 | °C |
| Storage Temperature Range | T _{stg} | -55 to +150 | °C |

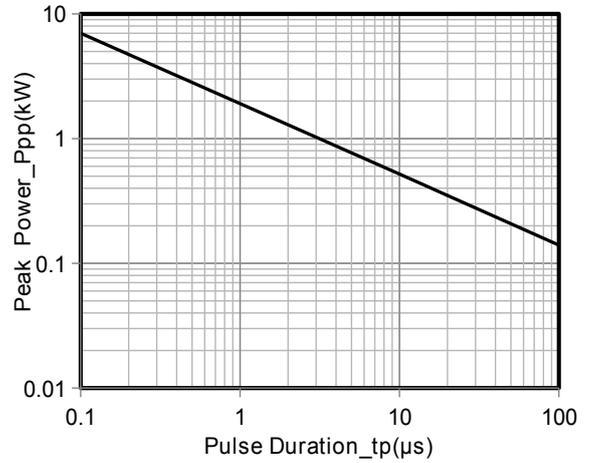
Electrical Characteristics (T_A=25°C unless otherwise specified)

| Parameter | Symbol | Min | Typ | Max | Unit | Test Condition |
|-------------------------|------------------|------|-----|-----|------|--|
| Reverse Working Voltage | V _{RWM} | | | 12 | V | |
| Breakdown Voltage | V _{BR} | 13.3 | | | V | I _T = 1mA |
| Reverse Leakage Current | I _R | | | 0.2 | μA | V _{RWM} = 12V |
| Clamping Voltage | V _C | | | 18 | V | I _{PP} = 1A (8 x 20μs pulse) |
| Clamping Voltage | V _C | | | 25 | V | I _{PP} = 14A (8 x 20μs pulse) |
| Junction Capacitance | C _J | | 1 | | pF | V _R = 0V, f = 1MHz |

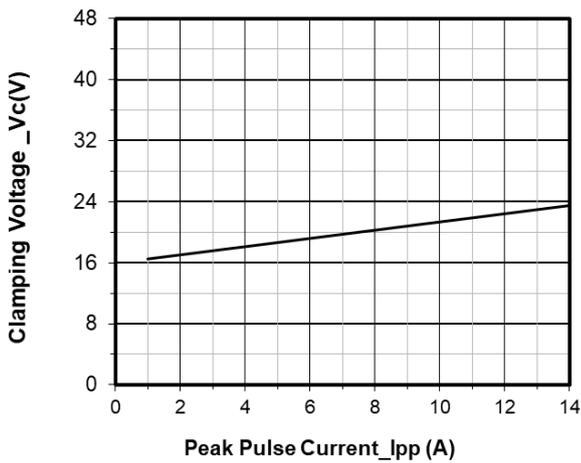
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



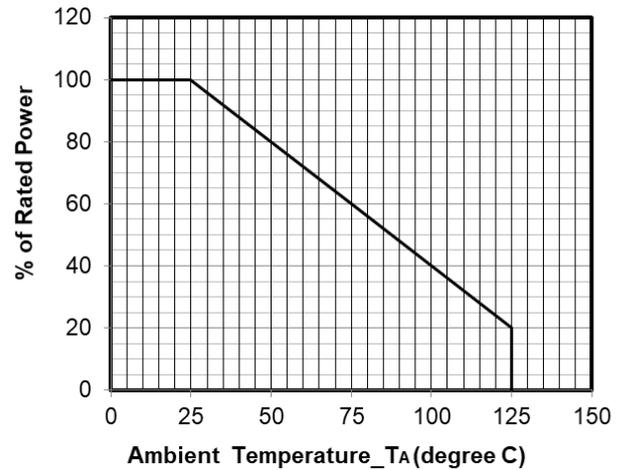
Junction Capacitance vs. Reverse Voltage



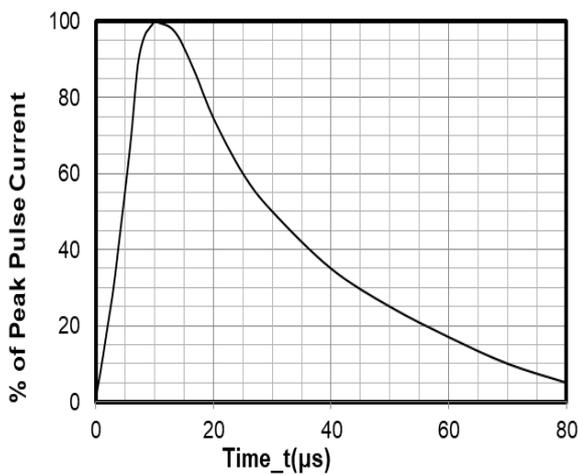
Peak Pulse Power vs. Pulse Time



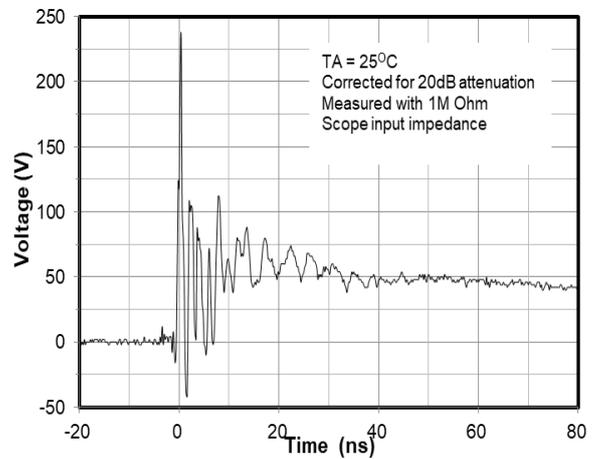
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve

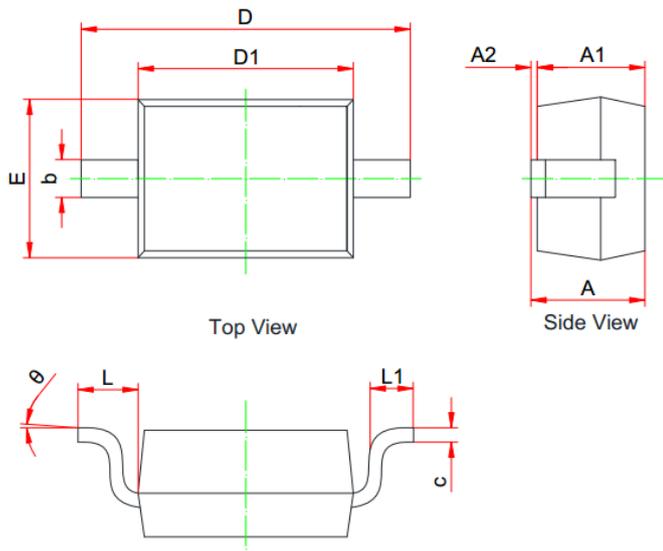


8 X 20μs Pulse Waveform



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

SOD-323 Package Outline Drawing



| SYM | MILLIMETERS | | |
|----------|-------------|-------|-------|
| | MIN | NOM | MAX |
| A | 0.800 | -- | 1.100 |
| A1 | 0.800 | -- | 0.900 |
| A2 | 0.000 | -- | 0.100 |
| b | 0.250 | -- | 0.400 |
| c | 0.080 | -- | 0.177 |
| D1 | 1.600 | 1.700 | 1.800 |
| D | 2.300 | -- | 2.800 |
| E | 1.150 | -- | 1.400 |
| L | 0.475REF | | |
| L1 | 0.100 | -- | 0.500 |
| Θ | 0° | -- | 8° |

Suggested Land Pattern



Unit: mm

Contact Information

Applied Power Microelectronics Co., Ltd.

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

Email: sales@appliedpowermicro.com

Phone: +86 (0519) 8399 3606

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