

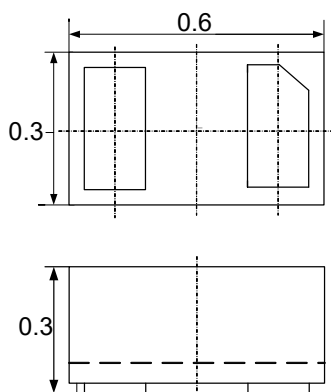
Description

The AU0521P0 is a 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 line. The AU0521P0 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 0.6x0.3x0.3mm lead-free DFN package. The ultra small size and high ESD surge protection make AU0521P0 an ideal choice to replace 0201 size multilayer varistors (MLVs) and protect cell phone, digital cameras, audio players and many other portable applications.

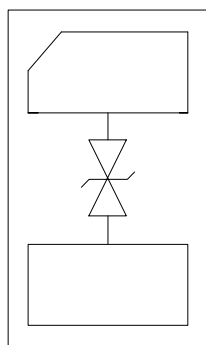
Features

- Ultra small package: 0.6x0.3x0.3mm
- Very low capacitance
- Protects one data or power line
- Ultra low leakage: nA level
- Operating voltage: 5V
- Low clamping voltage
- 2-pin leadless package
- 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) 8A (8/20 μs)
- RoHS Compliant

Dimensions and Pin Configuration



Package Dimensions



Circuit and Pin Schematic

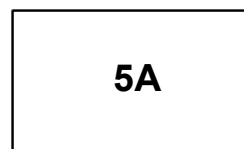
Mechanical Characteristics

- Package: DFN0603-2 (0.6x0.3x0.3mm)
- Case Material: "Green" Molding Compound.
- 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
-

Marking Information



5A = Device Marking Code

Ordering Information

| Part Number | Packaging | Reel Size |
|-------------|-------------------|-----------|
| AU0521P0 | 10000/Tape & Reel | 7 inch |

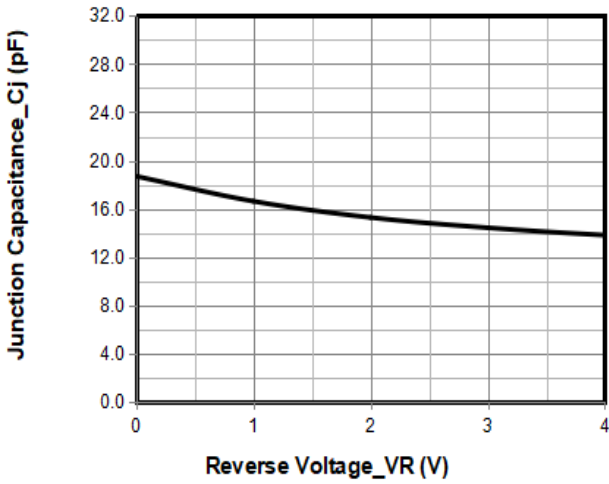
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|--|--------|-------------|------|
| Peak Pulse Power (8/20μs) | Ppk | 100 | W |
| Peak Pulse Current (8/20μs) | Ipp | 8 | A |
| ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact) | VESD | ±30 ±30 | kV |
| Operating Temperature Range | TJ | -55 to +125 | °C |
| Storage Temperature Range | Tstg | -55 to +150 | °C |

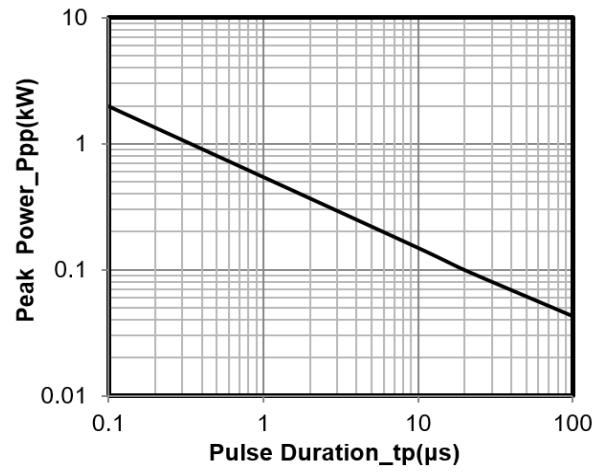
Electrical Characteristics (T_A=25°C unless otherwise specified)

| Parameter | Symbol | Min | Typ | Max | Unit | Test Condition |
|-------------------------|--------|-----|-----|------|------|---------------------------------------|
| Reverse Working Voltage | VRWM | | | 5 | V | |
| Breakdown Voltage | VBR | 6 | | 8 | V | IT = 1mA |
| Reverse Leakage Current | IR | | | 0.1 | μA | VRWM = 5V |
| Clamping Voltage | VC | | | 8.5 | V | I _{PP} = 1A (8 x 20μs pulse) |
| Clamping Voltage | VC | | | 12.5 | V | I _{PP} = 8A (8 x 20μs pulse) |
| Junction Capacitance | CJ | | | 20 | pF | VR = 0V, f = 1MHz |

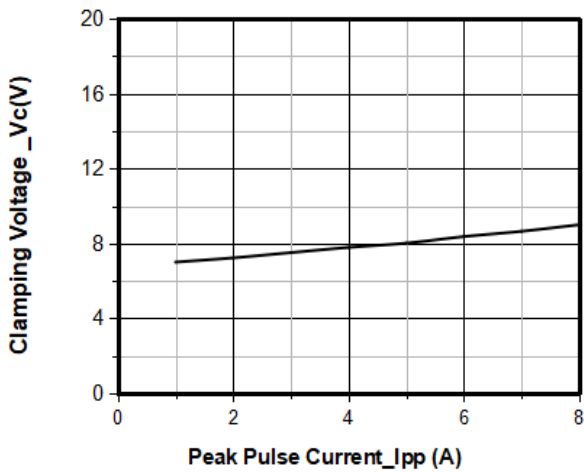
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



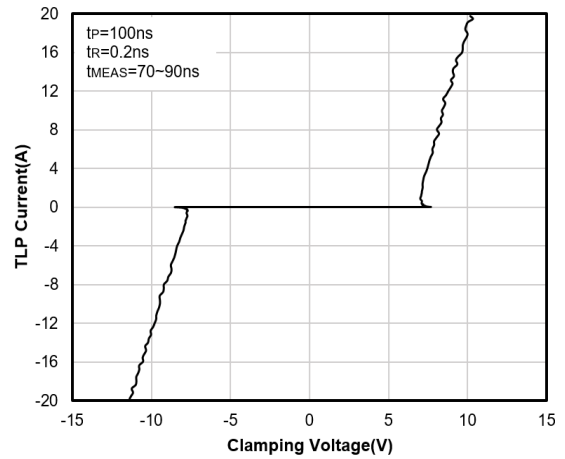
Junction Capacitance vs. Reverse Voltage



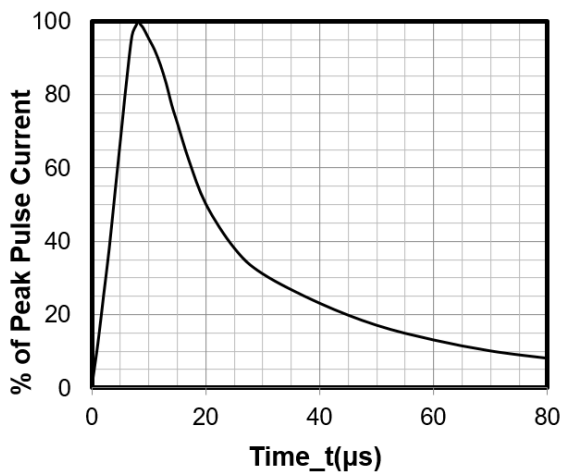
Peak Pulse Power vs. Pulse Time



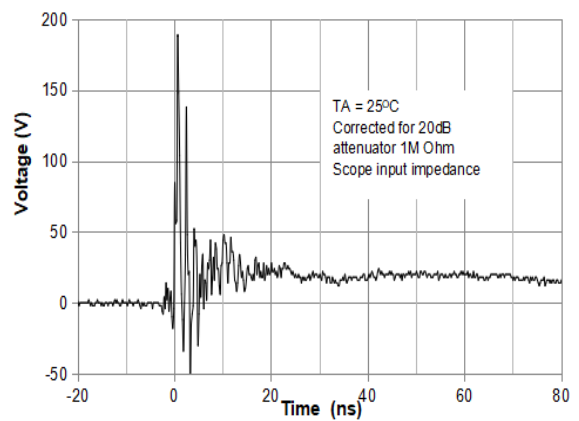
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve

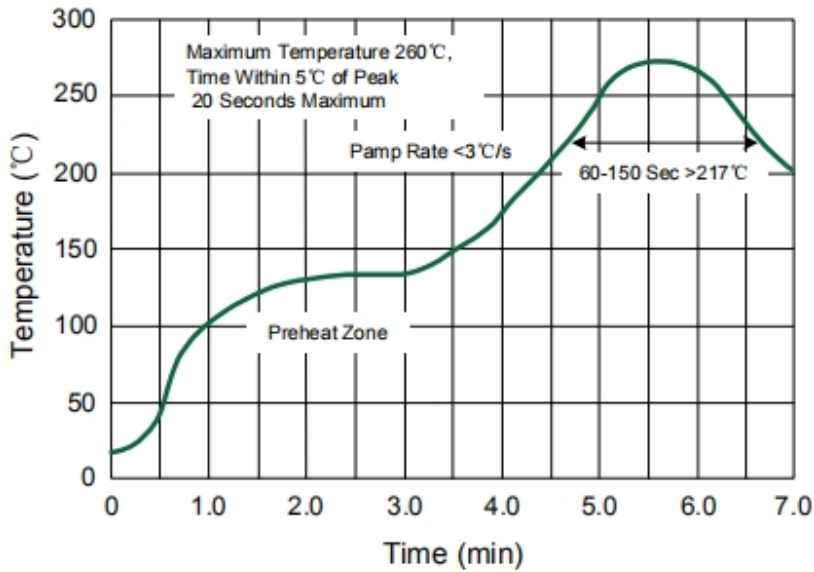


8 X 20μs Pulse Waveform



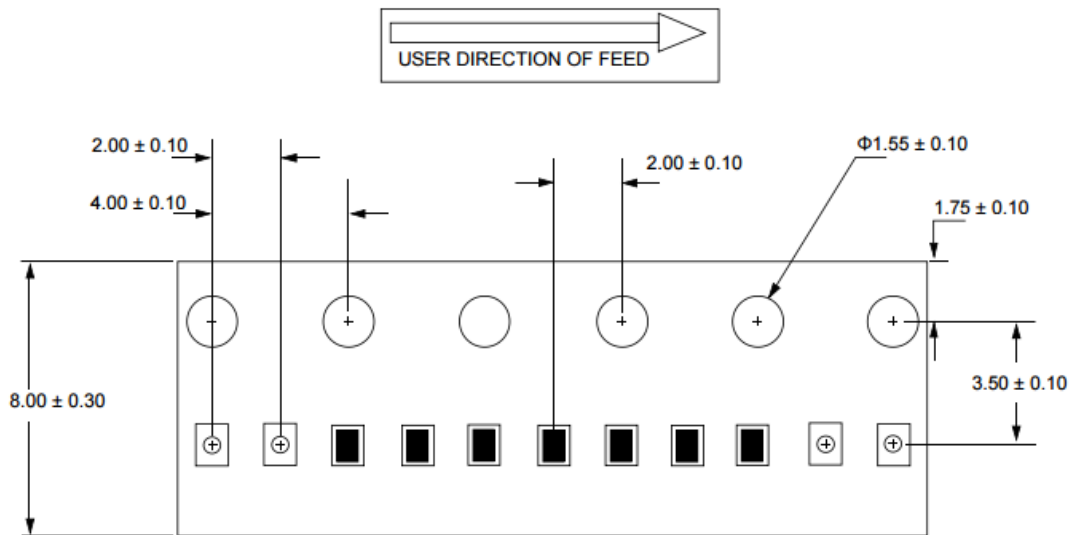
**ESD Clamping Voltage
8 kV Contact per IEC61000-4-2**

Re-flow Solder Profile



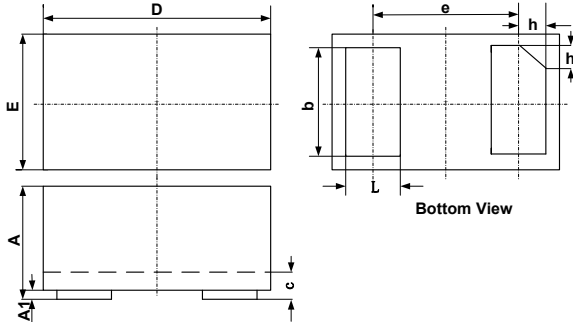
Lead-free Re-flow Solder Profile

Tape and Reel Specification



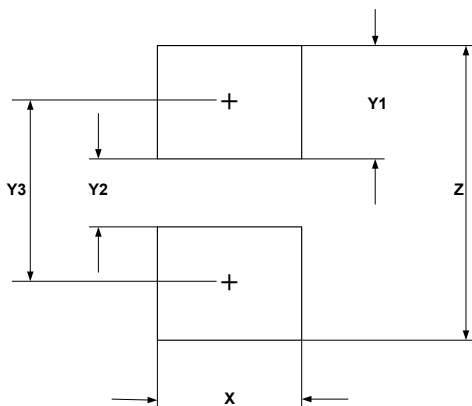
Unit: mm

DFN0603-2 Package Outline Drawing



| SYM | DIMENSIONS | | |
|-----|-------------|-------|-------|
| | MILLIMETERS | | |
| | MIN | NOM | MAX |
| A | 0.230 | | 0.330 |
| A1 | 0.000 | 0.020 | 0.050 |
| b | 0.215 | 0.245 | 0.275 |
| c | 0.120 | 0.150 | 0.180 |
| D | 0.550 | 0.600 | 0.650 |
| e | 0.355 BSC | | |
| E | 0.250 | 0.300 | 0.350 |
| L | 0.160 | 0.190 | 0.220 |
| h | 0.079 BSC | | |

Suggested Land Pattern



| SYM | DIMENSIONS | |
|-----|-------------|--------|
| | MILLIMETERS | INCHES |
| X | 0.30 | 0.012 |
| Y1 | 0.25 | 0.010 |
| Y2 | 0.15 | 0.006 |
| Y3 | 0.40 | 0.016 |
| Z | 0.65 | 0.026 |

Contact Information

Applied Power Microelectronics Inc.

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

Email: sales@appliedpowermicro.com

Phone: +86 (0519) 8399 3606