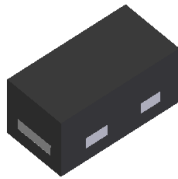


LOW CAPACITANCE BIDIRECTIONAL TVS DIODE
Features

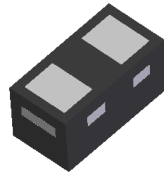
- Ultra-Small, Low Profile Leadless Surface Mount Package (0.6 * 0.3 * 0.3mm)
- Provides ESD Protection per IEC 61000-4-2 Standard: Air – ±30kV, Contact – ±30kV
- 1 Channel of ESD Protection
- Low Channel Input Capacitance
- Typically Used in Cellular Handsets, Portable Electronics, Communication Systems, Computers and Peripherals
- **Lead Free/RoHS Compliant (Note 1)**
- **Halogen and Antimony Free "Green" Device (Notes 2 & 3)**

Mechanical Data

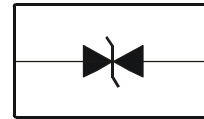
- Case: X3-DFN0603-2
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin over Copper leadframe, solderable per MIL-STD-202, Method 208
- Weight: 0.0002 grams (approximate)



Top View

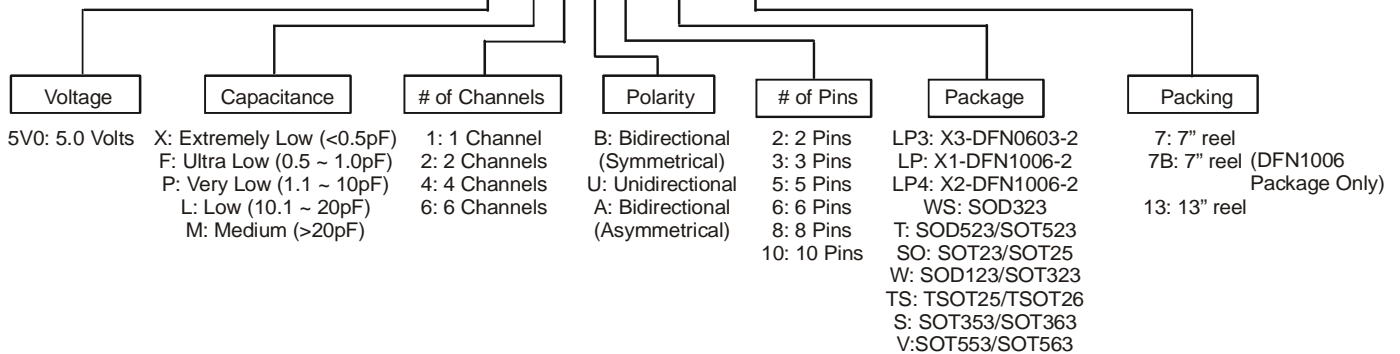


Bottom View



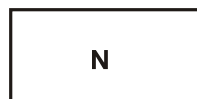
Device Schematic

Ordering Information (Note 4)

D 5V0 L X B X XXX- XX


| Part Number | Case | Packaging |
|---------------|--------------|--------------------|
| D5V0L1B2LP3-7 | X3-DFN0603-2 | 10,000/Tape & Reel |

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. No purposely added lead.
 2. Halogen and Antimony free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 3. Diodes Inc.'s "Green" policy can be found on our website at <http://www.diodes.com>.
 4. For packaging details, go to our website at <http://www.diodes.com>.

Marking Information


N = Product Type Marking Code

Maximum Ratings @T_A = 25°C unless otherwise specified

| Characteristic | Symbol | Value | Unit | Conditions |
|------------------------------------|--------------------------|-------|------|------------------------|
| Peak Pulse Power Dissipation | P _{PP} | 84 | W | 8/20μs, Per Fig. 1 |
| Peak Pulse Current | I _{PP} | 6 | A | 8/20μs, Per Fig. 1 |
| ESD Protection – Contact Discharge | V _{ESD_Contact} | ±30 | kV | Standard IEC 61000-4-2 |
| ESD Protection – Air Discharge | V _{ESD_Air} | ±30 | kV | Standard IEC 61000-4-2 |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|--|-----------------------------------|-------------|------|
| Package Power Dissipation (Note 5) | P _D | 250 | mW |
| Thermal Resistance, Junction to Ambient (Note 5) | R _{θJA} | 500 | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -65 to +150 | °C |

Electrical Characteristics @T_A = 25°C unless otherwise specified

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Conditions |
|---------------------------------------|------------------|-----|------|------|------|---|
| Reverse Standoff Voltage | V _{RWM} | - | - | 5 | V | - |
| Channel Leakage Current (Note 6) | I _{RM} | - | 10 | 100 | nA | V _{RWM} = 5V |
| Clamping Voltage, Positive Transients | V _{CL} | - | 7.0 | 9.0 | V | I _{PP} = 1A, t _p = 8/20μs |
| | | - | 8.7 | 10.7 | | I _{PP} = 3A, t _p = 8/20μs |
| | | - | 10.5 | 12.0 | | I _{PP} = 5A, t _p = 8/20μs |
| | | - | 11.5 | 14.0 | | I _{PP} = 6A, t _p = 8/20μs |
| Breakdown Voltage | V _{BR} | 6 | 7 | 8 | V | I _R = 1mA |
| Differential Resistance | R _{DIF} | - | 0.2 | - | Ω | I _R = 1A, t _p = 8/20μs |
| Channel Input Capacitance | C _T | - | 15 | 20 | pF | V _R = 0V, f = 1MHz |

- Notes:
- Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes, Inc. suggested pad layout AP02001, which can be found on our website at <http://www.diodes.com>.
 - Short duration pulse test used to minimize self-heating effect.

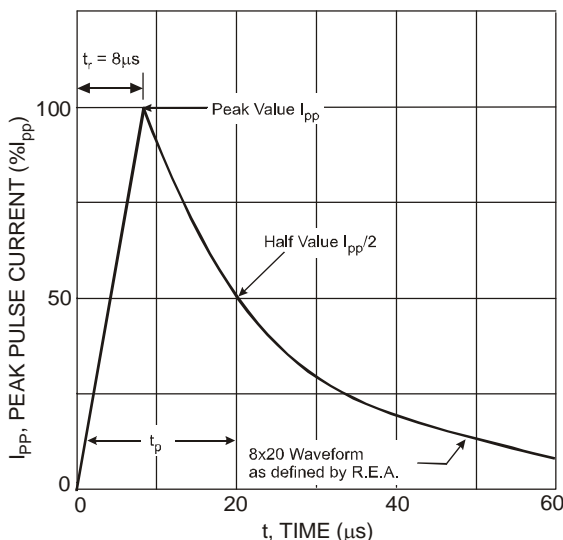


Fig. 1 Pulse Waveform

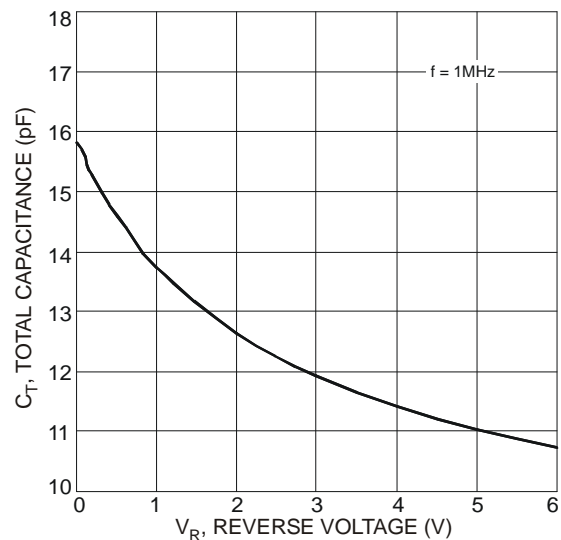


Fig. 2 Typical Total Capacitance vs. Reverse Voltage

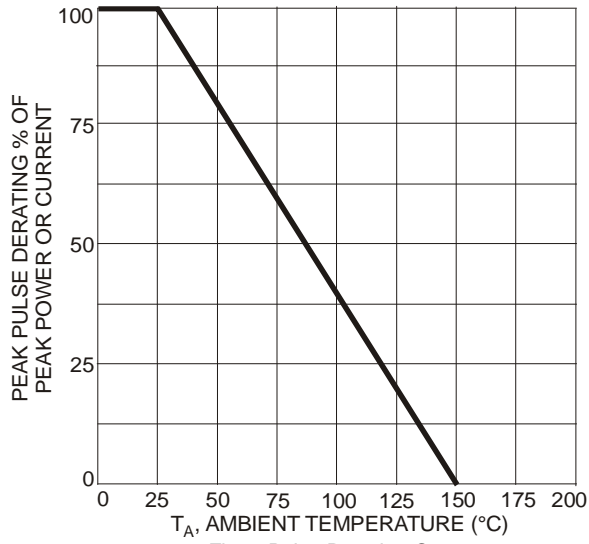


Fig. 3 Pulse Derating Curve

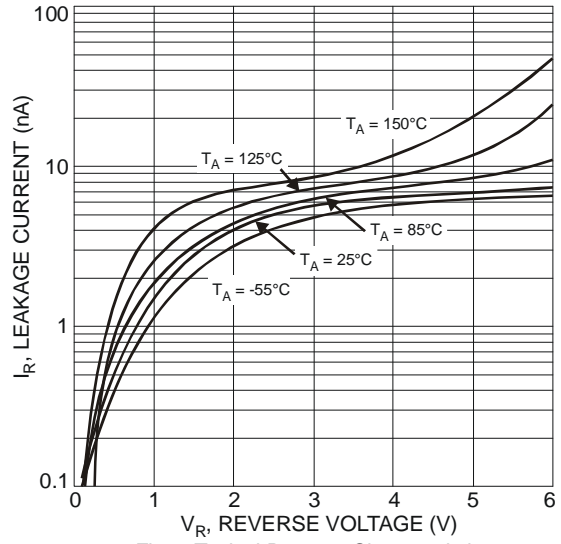
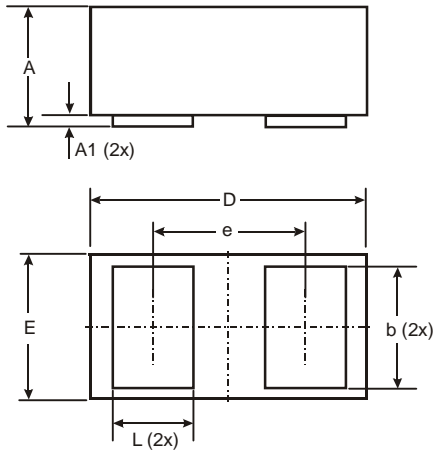


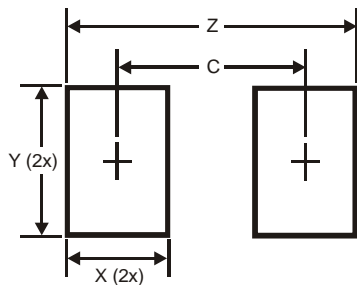
Fig. 4 Typical Reverse Characteristics

Package Outline Dimensions



| X3-DFN0603-2 | | | |
|----------------------|-------|-------|-------|
| Dim | Min | Max | Typ |
| A | 0.27 | 0.35 | 0.30 |
| A1 | 0.00 | 0.03 | 0.02 |
| b | 0.19 | 0.29 | 0.24 |
| D | 0.595 | 0.645 | 0.62 |
| E | 0.295 | 0.345 | 0.32 |
| e | - | - | 0.355 |
| L | 0.14 | 0.24 | 0.19 |
| All Dimensions in mm | | | |

Suggested Pad Layout



| Dimensions | Value (in mm) |
|------------|---------------|
| C | 0.355 |
| X | 0.230 |
| Y | 0.300 |
| Z | 0.610 |

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