

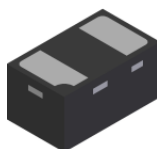
**ULTRA LOW LEAKAGE SURFACE MOUNT FAST SWITCHING DIODE**
**Features**

- Ultra-Small, Leadless Surface Mount Package (1.0 x 0.6mm)
- Ultra-Low Profile Package (0.4mm)
- Fast Switching Speed, Fast Reverse Recovery Time
- Ultra-Low Reverse Leakage Current ( $\sim 5\text{nA}$  @  $V_R = 5\text{V}$ )
- Very Low Capacitance ( $<1\text{pF}$  @  $V_R=0\text{V}$ )
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

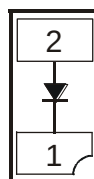
**Mechanical Data**

- Case: X2-DFN1006-2
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Bar (See Marking Information)
- Terminals: Finish - NiPdAu over Copper Leadframe; Solderable per MIL-STD-202, Method 208 ④
- Weight: 0.001 grams (Approximate)

X2-DFN1006-2



Bottom View



Device Schematic

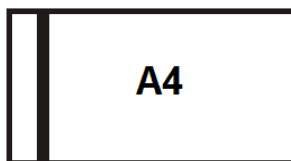
**Ordering Information** (Note 4)

| Part Number     | Compliance | Case         | Packaging          |
|-----------------|------------|--------------|--------------------|
| DLLFSD01LPH4-7B | Standard   | X2-DFN1006-2 | 10,000/Tape & Reel |

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

**Marking Information**

X2-DFN1006-2


 Top View  
 Bar Denotes Cathode Side

A4 = Product Type Marking Code

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic                                        | Symbol              | Value | Unit |
|-------------------------------------------------------|---------------------|-------|------|
| Non-Repetitive Peak Reverse Voltage                   | V <sub>RM</sub>     | 85    | V    |
| Peak Repetitive Reverse Voltage                       | V <sub>RRM</sub>    | 80    | V    |
| Working Peak Reverse Voltage                          | V <sub>RWM</sub>    |       |      |
| DC Blocking Voltage                                   | V <sub>R</sub>      |       |      |
| RMS Reverse Voltage                                   | V <sub>R(RMS)</sub> | 57    | V    |
| Forward Continuous Current                            | I <sub>FM</sub>     | 300   | mA   |
| Average Rectified Output Current                      | I <sub>O</sub>      | 100   | mA   |
| Non-Repetitive Peak Forward Surge Current @ t = 1.0μs | I <sub>FSM</sub>    | 2.0   | A    |

**Thermal Characteristics**

| Characteristic                                      | Symbol                            | Value       | Unit |
|-----------------------------------------------------|-----------------------------------|-------------|------|
| Power Dissipation (Note 5)                          | P <sub>D</sub>                    | 350         | mW   |
| Thermal Resistance Junction to Ambient Air (Note 5) | R <sub>θJA</sub>                  | 357         | °C/W |
| Operating and Storage Temperature Range             | T <sub>J</sub> , T <sub>STG</sub> | -65 to +150 | °C   |

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic                     | Symbol             | Min | Typ                  | Max                 | Unit           | Test Condition                                                                                                                                          |
|------------------------------------|--------------------|-----|----------------------|---------------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reverse Breakdown Voltage (Note 6) | V <sub>(BR)R</sub> | 80  | —                    | —                   | V              | I <sub>R</sub> = 100μA                                                                                                                                  |
| Forward Voltage                    | V <sub>F</sub>     | —   | 0.62<br>0.74<br>0.94 | 0.7<br>0.82<br>1.20 | V              | I <sub>F</sub> = 1.0mA<br>I <sub>F</sub> = 10mA<br>I <sub>F</sub> = 100mA                                                                               |
| Leakage Current (Note 6)           | I <sub>R</sub>     | —   | 5                    | 10.0                | nA<br>μA<br>μA | V <sub>R</sub> = 5V<br>V <sub>R</sub> = 30V<br>V <sub>R</sub> = 80V                                                                                     |
| Total Capacitance                  | C <sub>T</sub>     | —   | 0.5                  | 2.5                 | pF             | V <sub>R</sub> = 0, f = 1.0MHz                                                                                                                          |
| Reverse Recovery Time              | t <sub>rr</sub>    | —   | —                    | 4.0<br>4.0          | ns<br>ns       | I <sub>F</sub> = 10mA, V <sub>R</sub> = 6V<br>I <sub>F</sub> = I <sub>R</sub> = 10mA,<br>t <sub>rr</sub> = 0.1 × I <sub>R</sub> , R <sub>L</sub> = 100Ω |

Notes: 5. Part mounted on FR-4 PC board with recommended pad layout, which can be found on our website at <http://www.diodes.com>.  
 6. Short duration pulse test used to minimize self-heating effect.

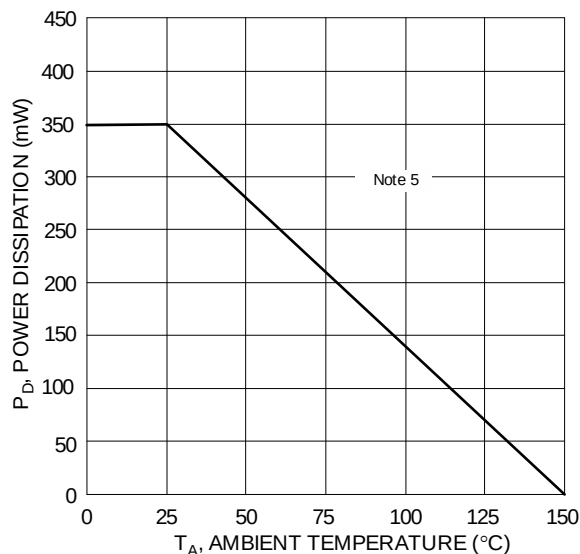


Figure 1 Power Derating Curve, Total Package

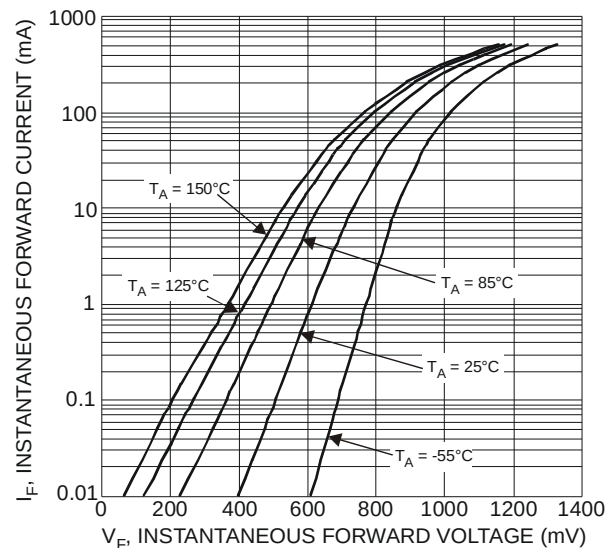


Figure 2 Typical Forward Characteristics

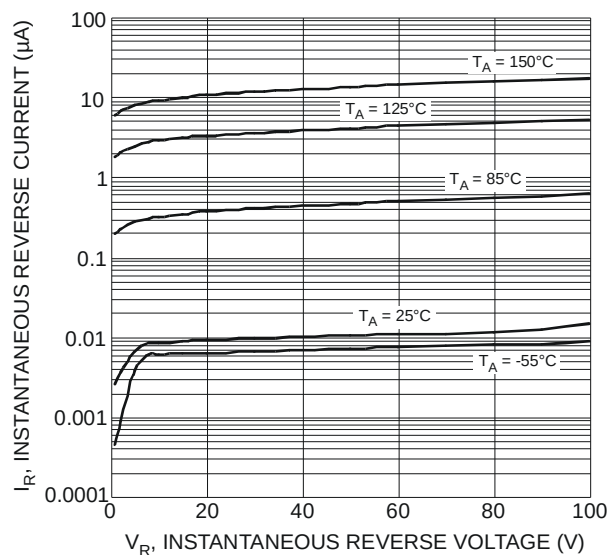


Figure 3 Typical Reverse Characteristics

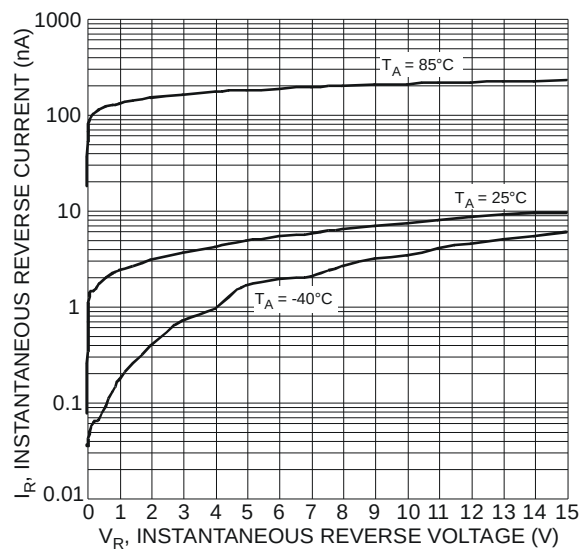


Figure 4 Typical Reverse Characteristics

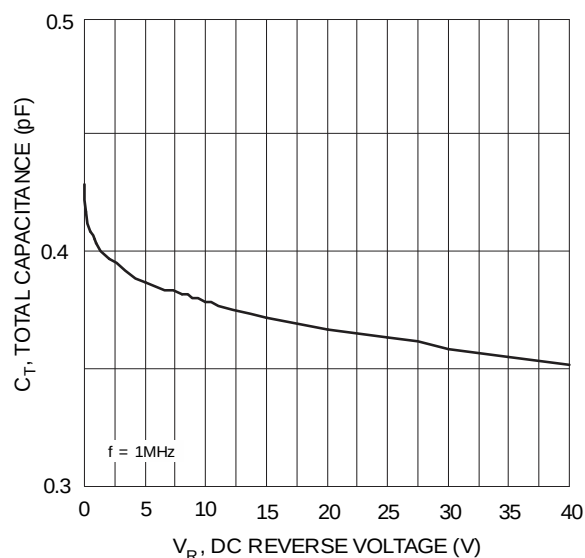
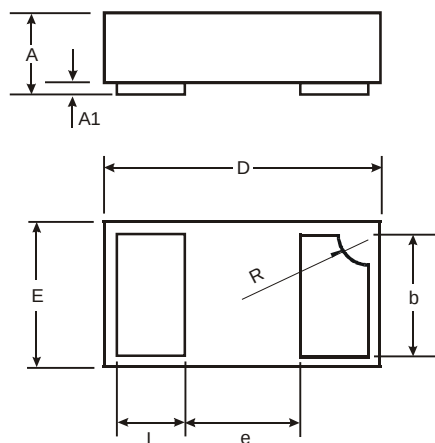


Figure 5 Total Capacitance vs. Reverse Voltage

## Package Outline Dimensions

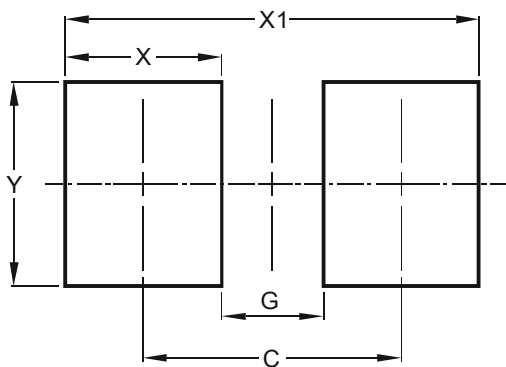
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



| X2-DFN1006-2         |      |       |      |
|----------------------|------|-------|------|
| Dim                  | Min  | Max   | Typ  |
| A                    | 0.34 | 0.4   | 0.37 |
| A1                   | 0    | 0.05  | 0.03 |
| b                    | 0.45 | 0.55  | 0.50 |
| D                    | 0.95 | 1.075 | 1.00 |
| E                    | 0.55 | 0.675 | 0.60 |
| e                    | -    | -     | 0.40 |
| L                    | 0.20 | 0.30  | 0.25 |
| R                    | 0.05 | 0.15  | 0.10 |
| All Dimensions in mm |      |       |      |

## Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 0.70          |
| G          | 0.30          |
| X          | 0.40          |
| X1         | 1.10          |
| Y          | 0.70          |

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