**DLLFSD01LP3**

# ULTRA LOW LEAKAGE SURFACE MOUNT FAST SWITCHING DIODE

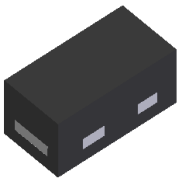
## Features

- Ultra-Small Leadless Surface Mount Package (0.6 x 0.3mm)
- Ultra-Low Profile Package (0.3mm)
- Fast Switching Speed, Fast Reverse Recovery Time
- Ultra-Low Reverse Leakage Current (~ 5nA @ $V_R$ = 5V)
- Very Low Capacitance (<1pF @ $V_R$=0V)
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

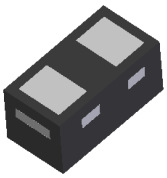
## Mechanical Data

- 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
- Terminal Connections: Cathode Bar
- Terminals: Finish — Matte Tin Finish over Copper Leadframe (Lead-Free Plating). Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.0002 grams (Approximate)

X3-DFN0603-2



Top View



Bottom View

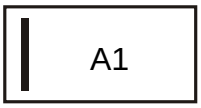
## Ordering Information (Note 4)

| Part Number | Compliance | Case | Packaging |
|---|---|---|---|
| DLLFSD01LP3-7 | Standard | X3-DFN0603-2 | 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 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

X3-DFN0603-2




A1 = Product Type Marking Code
Bar Denotes Cathode Side

## Maximum Ratings (@$T_A$ = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Non-Repetitive Peak Reverse Voltage | $V_{RM}$ | 85 | V |
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 80 | V |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 57 | V |
| Forward Continuous Current | $I_{FM}$ | 300 | mA |
| Average Rectified Output Current | $I_O$ | 100 | mA |
| Non-Repetitive Peak Forward Surge Current @t = 1.0µs | $I_{FSM}$ | 2.0 | A |

## Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Power Dissipation (Note 5) | $P_D$ | 200 | mW |
| Thermal Resistance Junction to Ambient Air (Note 5) | $R_{\theta JA}$ | 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 Condition |
|---|---|---|---|---|---|---|
| Reverse Breakdown Voltage (Note 6) | $V_{(BR)R}$ | 80 | — | — | V | $I_R$ = 100µA |
| Forward Voltage | $V_F$ | —<br>—<br>— | 0.62<br>0.74<br>0.94 | 0.7<br>0.82<br>1.20 | V | $I_F$ = 1.0mA<br>$I_F$ = 10mA<br>$I_F$ = 100mA |
| Leakage Current (Note 6) | $I_R$ | —<br>—<br>— | 5<br>—<br>— | 10.0<br>0.1<br>0.2 | nA<br>µA<br>µA | $V_R$ = 5V<br>$V_R$ = 30V<br>$V_R$ = 80V |
| Total Capacitance | $C_T$ | — | 0.5 | 2.5 | pF | $V_R$ = 0, f = 1.0MHz |
| Reverse Recovery Time | $t_{rr}$ | —<br>— | —<br>— | 4.0<br>4.0 | ns<br>ns | $I_F$ = 10mA, $V_R$ = 6V<br>$I_F$ = $I_R$ = 10mA,<br>$I_{rr}$ = 0.1 x $I_R$, $R_L$ = 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.

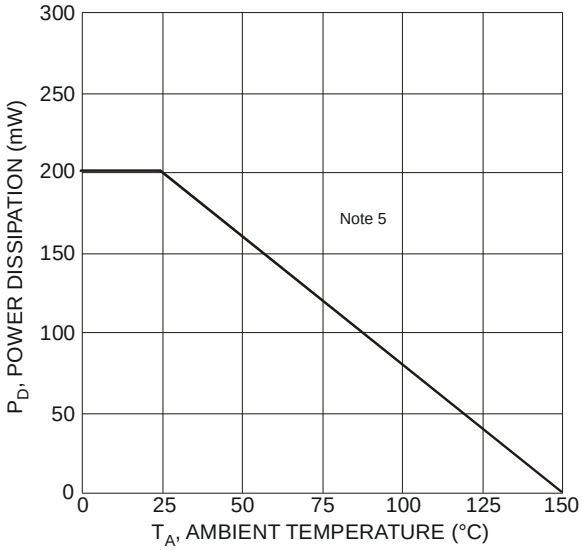


Figure 1 Power Derating Curve, Total Package

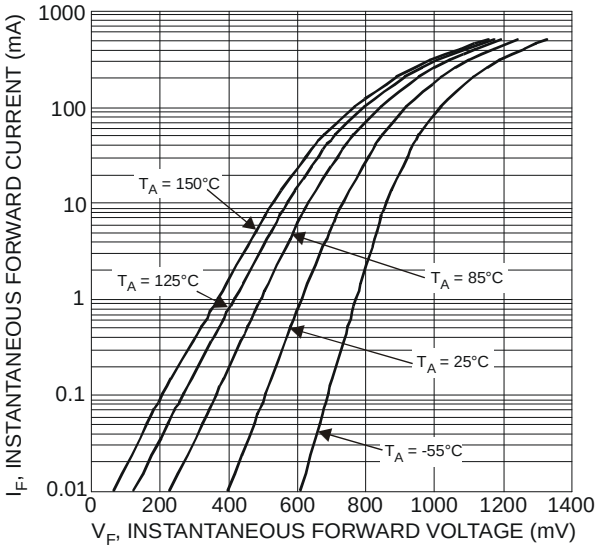


Figure 2 Typical Forward Characteristics

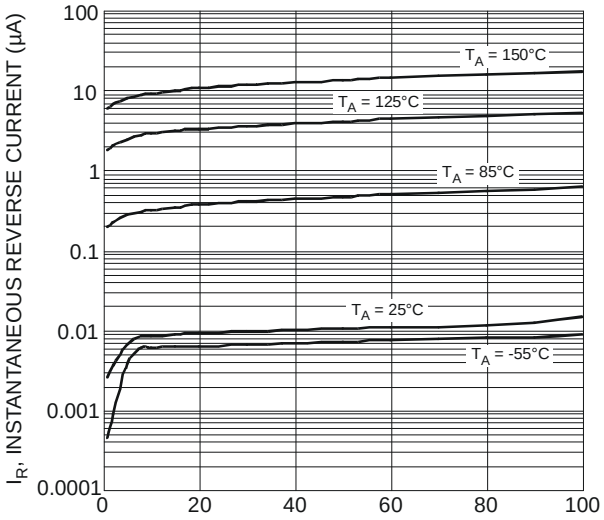



Figure 3 Typical Reverse Characteristics

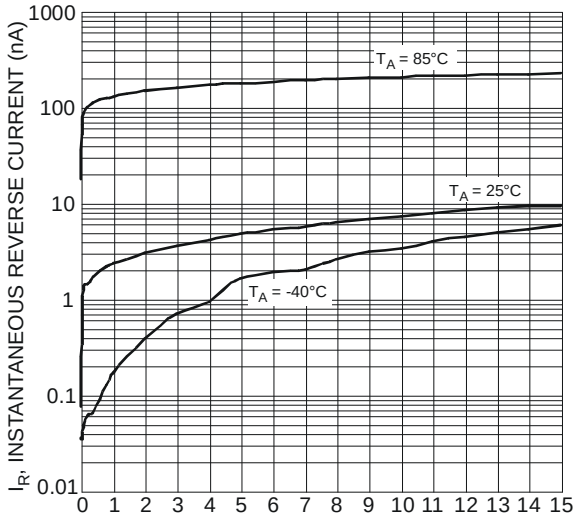



Figure 4 Typical Reverse Characteristics

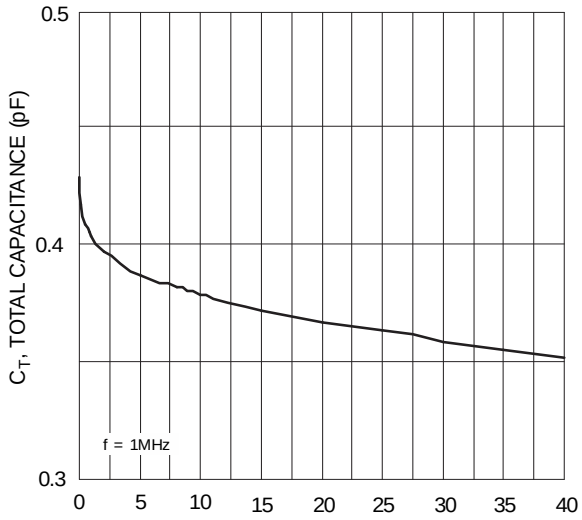
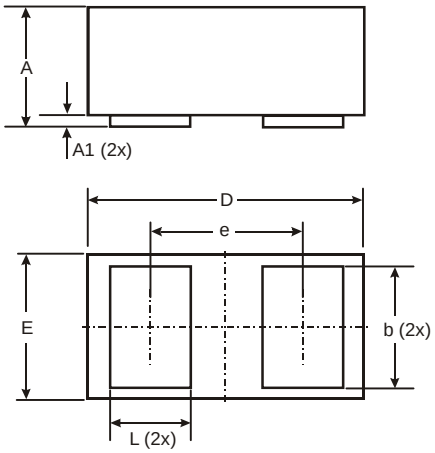



Figure 5 Total Capacitance vs. Reverse Voltage

## Package Outline Dimensions

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

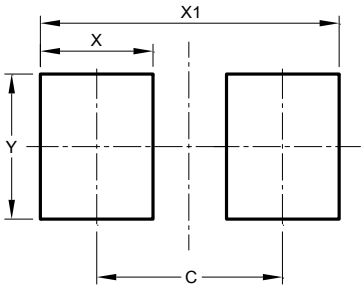



Bottom View

| 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

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




| Dimensions | Value (in mm) |
|---|---|
| **C** | 0.380 |
| **X** | 0.230 |
| **X1** | 0.610 |
| **Y** | 0.300 |

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