FAIRCHILD
A Schlumberger Company

# FD700/FDLL700
# FD777/FDLL777
## Ultra Fast Diodes

T-03-09

- C...1.0 pF (MAX) @ $V_R$ = 0, f = 1.0 MHz (FD 700)
- $t_{rr}$...700 ps (MAX) @ $I_f = I_r$ = 10 mA, $R_L$ = 100 Ω (FD 700)
- CONTROLLED FORWARD CONDUCTANCE

**PACKAGES**

| | |
|---|---|
| FD700 | DO-7 |
| FD777 | DO-7 |
| FDLL700 | LL-34 |
| FDLL777 | LL-34 |

If you need this device in the SOT package, an electical equivalent is available. See FDSO1700 family.

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**ABSOLUTE MAXIMUM RATINGS** (Note 1)

| | | FD700 | FD777 |
|---|---|---|---|
| **Temperatures** | | | |
| Storage Temperature Range | | −65°C to +200°C | −65°C to +200°C |
| Max Junction Operating Temperature | | +175°C | +175°C |
| Lead Temperature | | +260°C | +260°C |
| **Power Dissipation** | | | |
| Maximum Total Dissipation at 25°C Ambient | | 250 mW | 250 mW |
| Linear Derating Factor (from 25°C) | | 1.67 mW/°C | 1.67 mW/°C |
| **Maximum Voltages and Currents** | | | |
| WIV | Working Inverse Voltage | 20 V | 8.0 V |
| $I_O$ | Average Rectified Current | 50 mA | 50 mA |
| $I_F$ | Forward Current Steady State dc | 150 mA | 150 mA |
| $I_f$ | Recurrent Peak Forward Current | 150 mA | 150 mA |
| $I_f$ (surge) | Peak Forward Surge Current Pulse Width = 1.0 s | 250 mA | 250 mA |

**ELECTRICAL CHARACTERISTICS** (25°C Ambient Temperature unless otherwise noted)

| SYMBOL | CHARACTERISTIC | FD700 MIN | FD700 MAX | FD777 MIN | FD777 MAX | UNITS | TEST CONDITIONS |
|---|---|---|---|---|---|---|---|
| $V_F$ | Forward Voltage | 0.89 | 1.10 | 0.89 | 1.35 | V | $I_F$ = 50 mA |
| | | 0.81 | 0.95 | 0.81 | 1.00 | V | $I_F$ = 20 mA |
| | | 0.76 | 0.88 | 0.76 | 0.94 | V | $I_F$ = 10 mA |
| | | 0.64 | 0.74 | 0.64 | 0.79 | V | $I_F$ = 1.0 mA |
| | | 0.52 | 0.61 | 0.52 | 0.64 | V | $I_F$ = 0.1 mA |
| | | 0.42 | 0.50 | 0.42 | 0.53 | V | $I_F$ = 0.01 mA |
| BV | Breakdown Voltage | 30 | | 15 | | V | $I_R$ = 5.0 μA |
| $I_R$ | Reverse Current | | 50 | | | nA | $V_R$ = 20 V |
| | | | | | 100 | nA | $V_R$ = 8.0 V |
| | | | 50 | | | μA | $V_R$ = 20 V, $T_A$ = 150°C |
| | | | | | 50 | μA | $V_R$ = 8.0 V, $T_A$ = 150°C |
| τ | Minority Carrier Lifetime | | 450 | | 450 | ps | (see Note 2) |
| $t_{rr}$ | Reverse Recovery Time (Note 3) | | 700 | | 750 | ps | $I_f = I_r$ = 10 mA, $R_L$ = 100 Ω |
| C | Capacitance | | 1.0 | | 1.3 | pF | $V_R$ = 0, f = 1.0 MHz |

NOTES:
1. The maximum ratings are limiting values above which life or satisfactory performance may be impaired.
2. Measured as suggested by S. M. Krakauer, IRE Proceedings, Volume 60, July 1962, pp. 1674 - 1675.
3. Recovery to 0.1 $I_R$.
4. For product family characteristic curves, refer to Chapter 4, D3.