

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, $R_L = 100 \Omega$ (FD 700)
- CONTROLLED FORWARD CONDUCTANCE

PACKAGES

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

ABSOLUTE MAXIMUM RATINGS (Note 1)

| Temperatures | FD700 | FD777 |
|--|-----------------|-----------------|
| 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_r Recurrent Peak Forward Current | 150 mA | 150 mA |
| I_f (surge) Peak Forward Surge Current | | |
| Pulse Width = 1.0 s | 250 mA | 250 mA |

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

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

| SYMBOL | CHARACTERISTIC | FD700 | | FD777 | | UNITS | TEST CONDITIONS |
|----------------|--------------------------------|-------|------|-------|------|---------|---|
| | | MIN | MAX | MIN | MAX | | |
| 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 | $I_R = 5.0 \mu$ A |
| I _R | Reverse Current | | 50 | | 100 | nA | $V_R = 20$ V |
| | | | 50 | | 50 | nA | $V_R = 8.0$ V |
| | | | | | 50 | μ A | $V_R = 20$ V, $T_A = 150^\circ$ C |
| | | | | | 50 | μ A | $V_R = 8.0$ V, $T_A = 150^\circ$ 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, $R_L = 100 \Omega$ |
| 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 80, July 1982, pp. 1674 - 1675.
3. Recovery to 0.1 I_R .
4. For product family characteristic curves, refer to Chapter 4, D3.