

**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)**

	FD700	FD777
<b>Temperatures</b>		
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
<b>Power Dissipation</b>		
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
<b>Maximum Voltages and Currents</b>		
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

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

3

**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	$\mu A$	$V_R = 20$ V, $T_A = 150^\circ C$
$\tau$	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. Krakeuer, IRE Proceedings, Volume 60, July 1982, pp. 1674 - 1675.
  3. Recovery to 0.1  $I_R$ .
  4. For product family characteristic curves, refer to Chapter 4, D3.