

Silicon – Diode

FD777

8V/50mA

DATASHEET

OEM – Fairchild

Source: Fairchild Databook 1978

FD700 • FD777

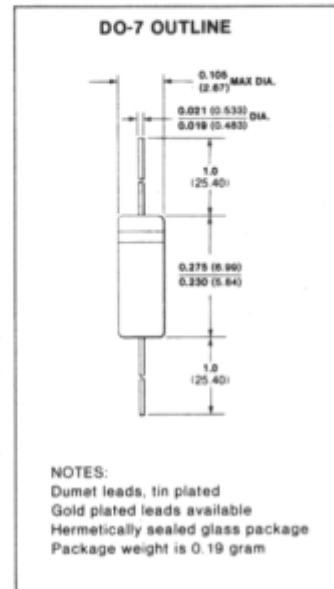
PICOSECOND COMPUTER DIODES

DIFFUSED SILICON PLANAR

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

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

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.

CURVE SET NUMBER D3
ULTRA-FAST SMALL SIGNAL DIODE

TYPICAL ELECTRICAL CHARACTERISTIC CURVES
 AT 25°C AMBIENT TEMPERATURE UNLESS OTHERWISE NOTED

