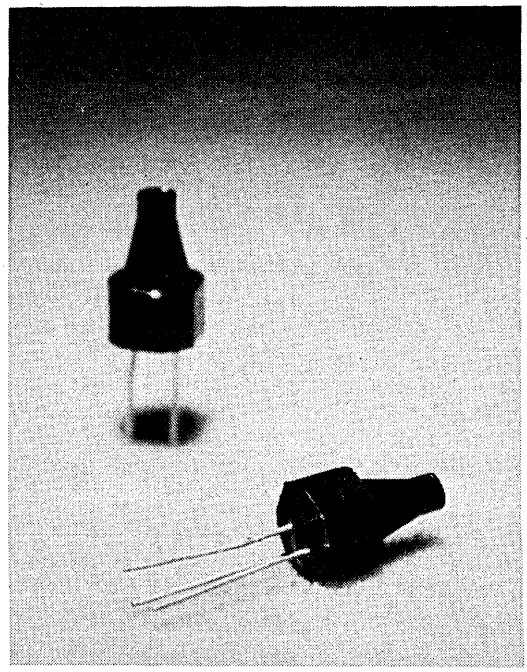
National Semiconductor

ADVANCE INFORMATION

FOR261F Monolithic TTL Fiber-Optic Receiver

General Description

The FOR261F is a high speed monolithic fiber-optic receiver accepting optical input and providing TTL outputs at NRZ data rates to 10 Mbits/s with only 7 μW of optical power. It is available in a short ferrule package which is compatible with Amphenol™ and AMP™ standard receptacles.



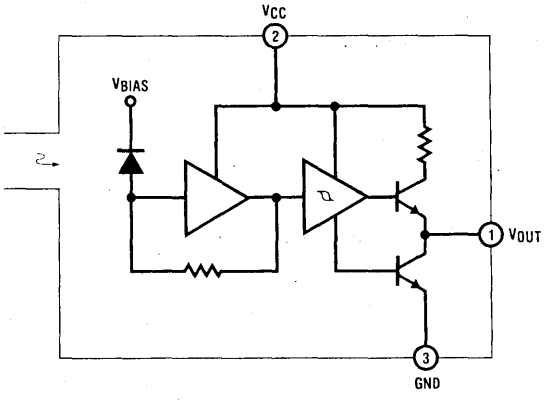
Features

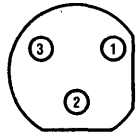
- Single +5V supply
- Optical input, TTL output
- 10 Mbits/s NRZ data rate with only 7 μW of peak optical power
- $<10^{-9}$ bit error rate
- Short ferrule package with 250 μm diameter optical port
- Compatible with AMP #227240-1 and Amphenol #905-135-5000 connectors
- Temperature compensated input

Applications

- Data communications
- Optical modem
- Industrial machine control
- Peripheral control/communications

Equivalent Circuit





Bottom View

Order Number FOR261F
See NS Package FO-03A

AMP is a trademark of AMP Corp.
Amphenol is a trademark of Bunker Ramo Corp.

Absolute Maximum Ratings

V_{CC}	Supply Voltage	+7V
P_{IN}	Optical Power Input	350 μW peak
T_{STG}	Storage Temperature	−25°C to +85°C
T_A	Operating Temperature Range	−25°C to +85°C
	Lead Temperature (Soldering, 10 seconds)	300°C

Electrical and Optical Characteristics $V_{CC} = +5V$, $T_A = 25°C$, $\lambda = 820nm$

Parameter		Conditions	Typ.	Units
I_{CC}	Supply Current Output High Output Low	$V_{CC} = 5.5V$	 12 16	mA
V_{OL}	Output Low Voltage	$P_{IN} = 7\mu W$, $I_{OL} = 16mA$	0.5	V
V_{OH}	Output High Voltage	$P_{IN} = 0\mu W$, $I_{OH} = -400\mu A$	2.7	V
BW	Data Rate (NRZ)	$P_{IN} = 7\mu W$, BER$<10^{-10}$	10	Mbits/s
NA	Numerical Aperture		0.5	
	Fiber Core Diameter		400	μm
NEP	Noise Equivalent Power	10 Hz to 10 MHz	14	nW
t_r	Output Rise Time	$P_{IN} = 7\mu W$, pk	40	ns
t_f	Output Fall Time	$P_{IN} = 7\mu W$ pk	40	ns
t_{pd}	Propagation Delay: Optical Input to TTL Output	$P_{IN} = 7\mu W$ pk	80	ns

Applications Information

The FOR261F is a monolithic fiber-optic receiver. It accepts optical input and gives TTL output. Figure 1 shows a typical application using the FOT180B fiber-optic transmitter as the optical source, and the FOR261F as the receiver. With 7 μW of input optical power, this configuration is capable of data rates to 10 Mbits/s NRZ.

Application Circuit