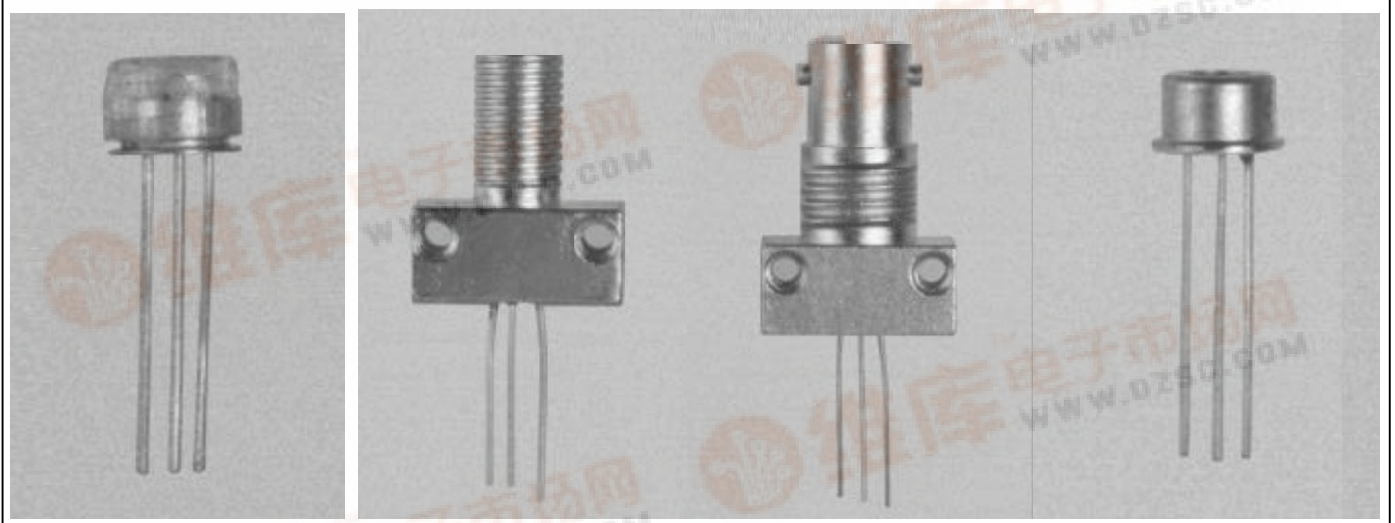




Product Bulletin OPF500
February 1996

200kbps Fiber Optic Receiver Type OPF500, OPF510 Series



Features

- Interfaces with all logic circuits
- Two output options
- Optimized for fiber optic applications using 50 to 200 micron fiber
- Data rate to 200kbps NRZ
- Available with multiple packaging options

Description

The OPF500, OPF510 series receiver contains a monolithic integrated circuit which incorporates a photodiode, a linear amplifier, a voltage regulator, and a Schmitt trigger on a single silicon chip. These receivers are designed for short haul fiber optic systems using 850 nm LED's such as Optek's OPF300 series.

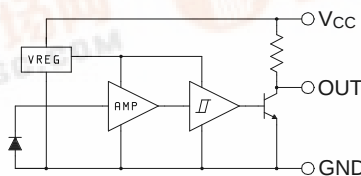
These devices feature TTL/LSTTL compatible logic level output. An internal voltage regulator allows operation with supply voltages ranging from 4.5V to 16V.

Absolute Maximum Ratings ($T_A = 25^\circ \text{C}$ unless otherwise noted)

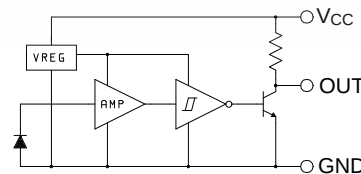
Supply Voltage	18 V
Storage Temperature Range	-65°C to $+100^\circ \text{C}$
Operating Temperature Range	-40°C to $+85^\circ \text{C}$
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec. with soldering iron]	240°C
Power Dissipation	200 mW
Duration of Output Short to V_{CC}	1 sec.
Voltage at Output	30 V
Sinking Current	16 mA

Schematics

Buffer/10K PU



Inverter/10K PU



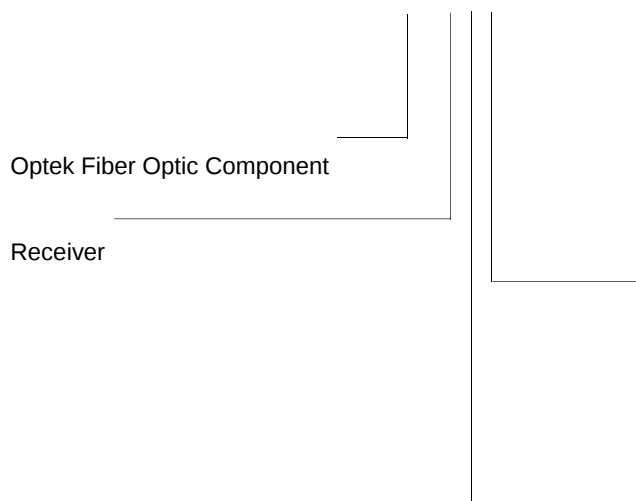
Type OPF500, OPF510 Series

Electrical Characteristics (-40° C to +85° C unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
V _{CC}	Operating Supply Voltage	4.5		16.0	V	
P _{IN}	Input Sensitivity (OPF5X0,1,2)		1.0	1.5	μW	50% Duty Cycle Square Wave
P _{IN}	Input Sensitivity (OPF5X5,6,7)		1.5	2.0	μW	50% Duty Cycle Square Wave
V _{OH}	High Level Output Voltage Buffer 10K Pull-up	V _{CC} -1.5			V	P _{IN} > 2.0 μW, V _{CC} = 4.5 V to 16 V
	Inverter 10K Pull-up	V _{CC} -1.5			V	P _{IN} < 0.1 μW, V _{CC} = 4.5 V to 16 V
V _{OL}	Low Level Output Voltage Buffer, 10K Pull-up Buffer Open-collector			0.4	V	P _{IN} < 0.1 μW, V _{CC} = 4.5 V to 16 V
	Inverter, 10K Pull-up Inverter Open-collector			0.4	V	P _{IN} > 2.0 μW, V _{CC} = 4.5 V to 16 V
I _{CC}	Supply Current		5.0	12.0	mA	V _{CC} = 4.5 V to 16 V, No load on output
BW	Bandwidth	200			kHz	P _{IN} > 2.0 μW, 50% Duty Cycle
PWD	Pulse With Distortion			10	%	1 μW < P _{IN} < 100 μW, f = 20 kHz, D.C. = 50%
t _r	Buffer			300	ns	P _{IN} = 1.5 μW, V _{CC} = 5 V
t _f				100	ns	
t _r	Inverter			100	ns	P _{IN} = 1.5 μW, V _{CC} = 5 V
t _f				300	ns	

PART NUMBER GUIDE

OPF5XX



- 0 - Plastic TO-18 Hsg.
- 1 - Plastic TO-18 in SMA
- 2 - Plastic TO-18 in ST*
- 5 - Metal TO-46 Hsg.
- 6 - Metal TO-46 in SMA
- 7 - Metal TO-46 in ST

- 0 - 200kbps, 10K Pull-up buffer (non-inverting) output
- 1 - 200kbps, 10K Pull-up inverting output

*ST is a registered trade mark of AT&T.

Optek reserves the right to make changes at any time in order to improve design and to supply the best product possible.

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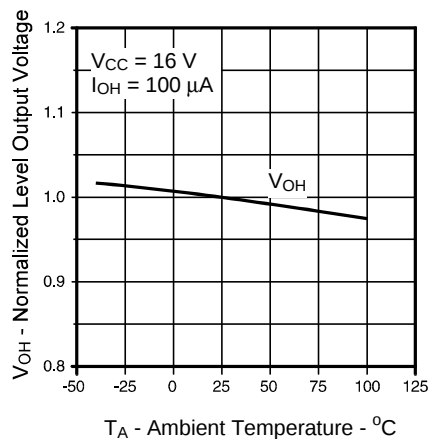
FIBER OPTIC COMPONENTS

Type OPF500, OPF510 Series

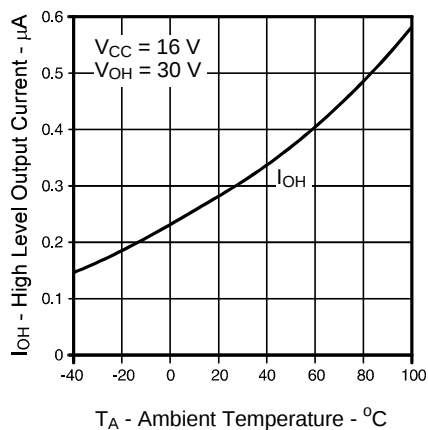


Typical Performance Curves

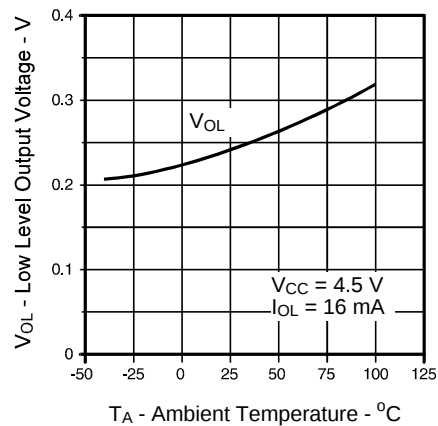
High Level Output Voltage vs Ambient Temperature



High Level Output Current vs Ambient Temperature



Low Level Output Voltage vs Ambient Temperature

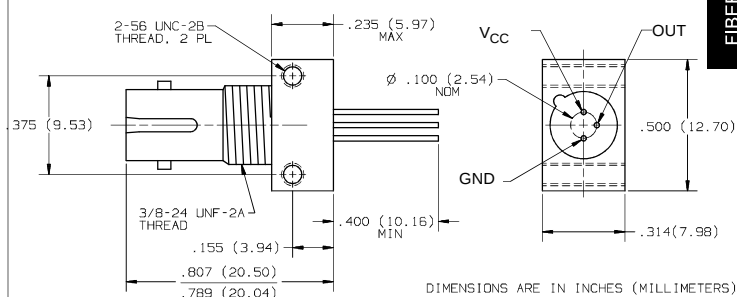
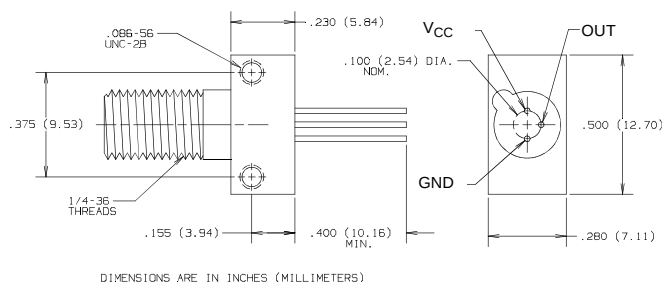


The drawing shows a 16-pin DIP package. The side view on the left indicates a total width of .168 (4.27) inches, with individual pin widths of .158 (4.01), .139 (3.53), and .125 (3.18) inches. The pin pitch is .500 (12.70) inches, with a minimum spacing of .011 (0.28) inches between pins. The pin height is .019 (0.48) inches, and the base thickness is .006 (0.15) inches. The top view on the right shows a circular body with a diameter of .225 (5.72) inches and a pin diameter of .025 (0.64) inches. The pin spacing is .048 (1.22) inches, and the pin pitch is .028 (0.71) inches. The pin angle is 45 degrees, and the pin length is .100 (2.54) inches. The pin diameter is .046 (1.17) inches, and the pin pitch is .036 (0.91) inches. The pin diameter is .046 (1.17) inches, and the pin pitch is .036 (0.91) inches. The pin diameter is .046 (1.17) inches, and the pin pitch is .036 (0.91) inches.

DIMENSIONS ARE IN INCHES (MILLIMETERS)

Figure 1 is a mechanical drawing of the PCB layout. It shows the top and bottom views of the PCB. The top view includes dimensions for the overall size (1.31 inches by 1.21 inches), mounting holes (0.100 inches diameter), and a central cutout (0.100 inches diameter). The bottom view shows the layout of the components, including the location of the 3 PL pins, the VCC pin, and the OUT pin. The drawing also includes a 45-degree angle dimension and a 0.048 inch dimension for the component placement.

ST* Package



FIBER OPTIC COMPONENTS