

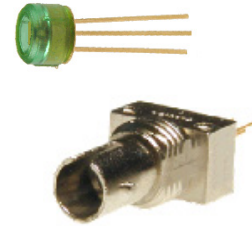
Fiber Optic Receiver

OPF560 Series



Features:

- Low Cost
- Data Rates up to 155 MBd
- Wide Temperature Range
- SMA, ST, or plastic cap style
- Wave Solderable



Description:

The OPF560 series receiver is a low cost solution for high speed fiber optic communication designs.

The output of the receiver is an analog, low impedance, emitter follower voltage source capable of driving an amplifier or level translating circuitry. This allows the subsequent circuitry to use the device in either the analog mode or translated to ECL/TTL levels for us in a digital mode at data rates up to 155MBAud.

The receiver is comprised of a high speed, low noise, photodiode coupled to a transimpedance amplifier which produces an output voltage proportional to the input light amplitude. This hybrid approach solves many of the problems of high speed data link designs by placing a pre-amplifier close to the photodiode. The amplification of the transimpedance amplifier makes the output signal much less susceptible to EMI.

An AC coupled receiver application circuit is shown. Both the 10 W resistor and bypass capacitor are critical.

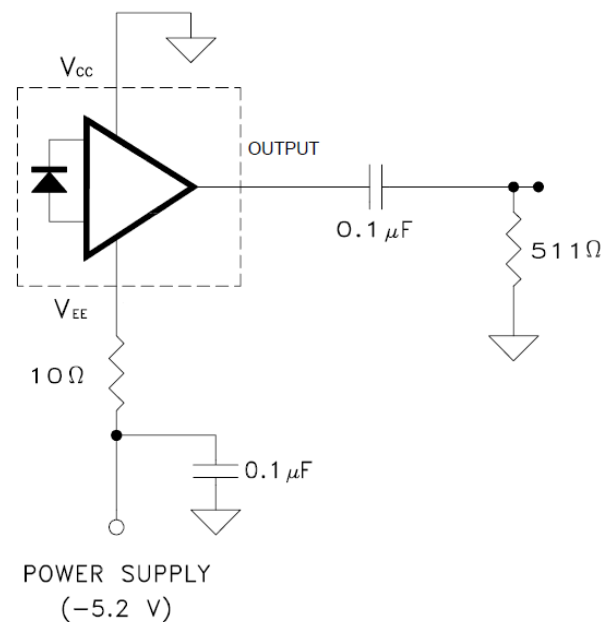
Applications:

- Industrial Ethernet equipment
- Copper-to-fiber media conversion
- Intra-system fiber optic links
- Video surveillance systems

Part Ordering Information

Part Number	Description
OPF560	Plastic Cap Component
OPF562	Metal ST Receptacle

Recommended AC Coupled Receiver Circuit



This component is susceptible to damage from electrostatic discharge (ESD). Normal static precautions should be taken in handling and assembly of this component to prevent ESD damage or degradation.

General Note
TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

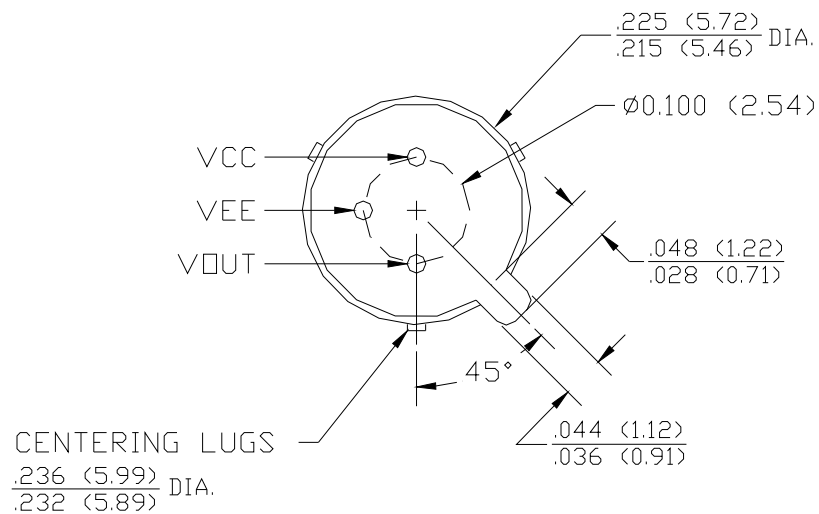
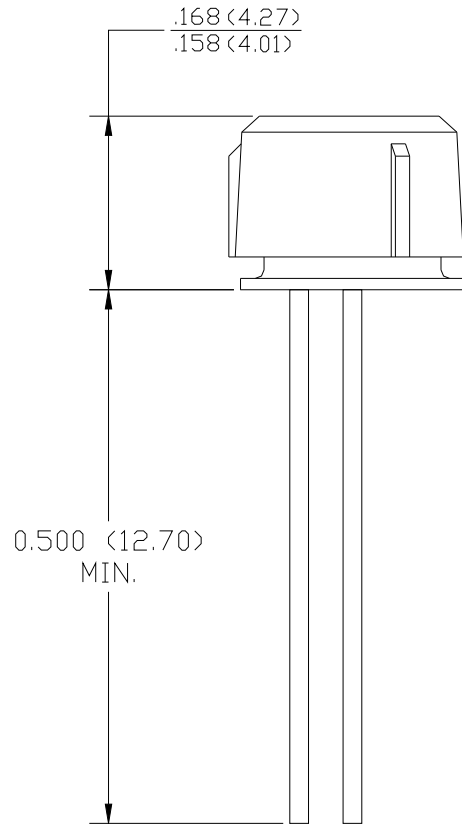
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Fiber Optic Receiver

OPF560 Series



Mechanical Outline—OPF560



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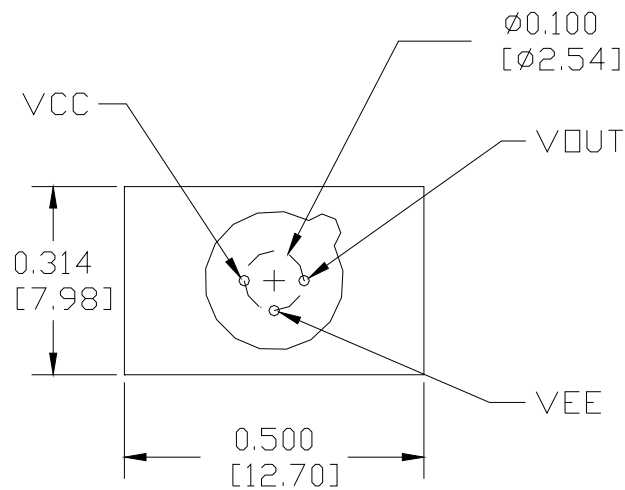
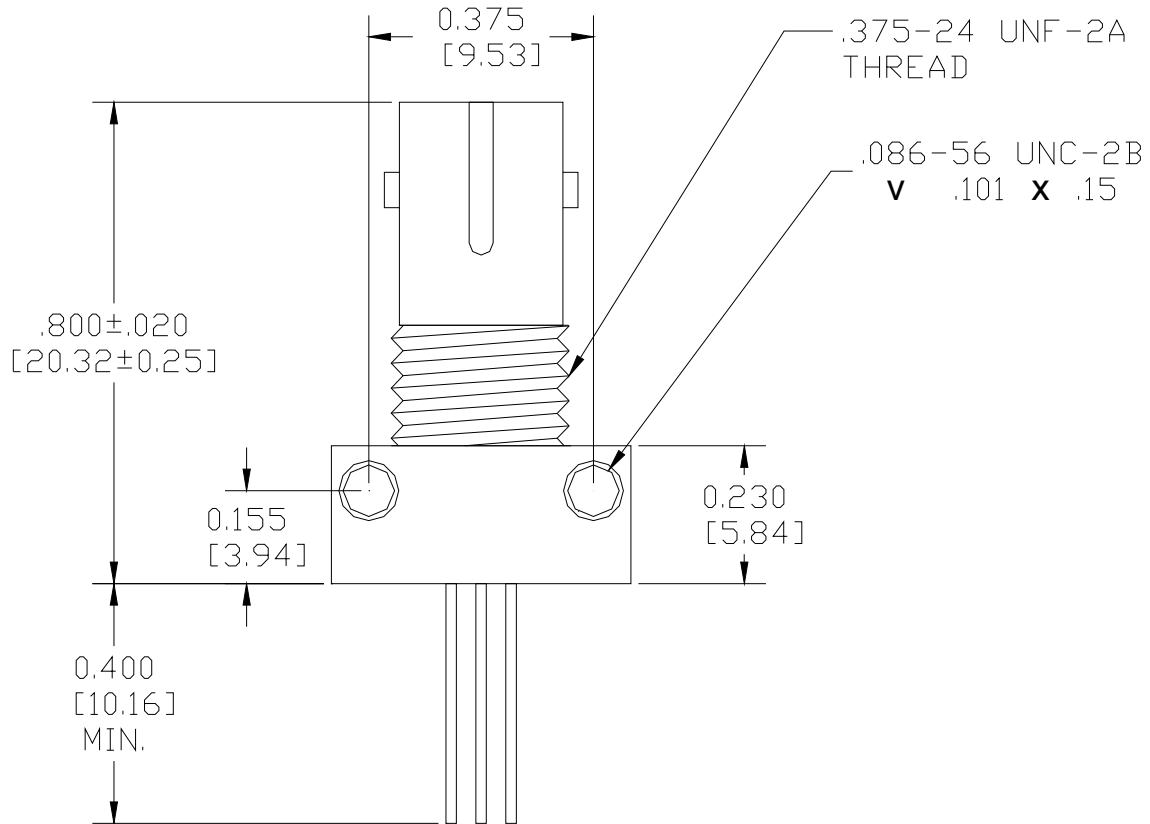
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Fiber Optic Receiver

OPF560 Series



Mechanical Outline—OPF562



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Electrical Specifications

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)	
Storage Temperature	-55° C to +85° C
Operating Temperature	-40° C to +85° C
Lead Soldering Temperature (for 10 seconds)	260° C
Supply Voltage ($V_{CC} - V_{EE}$)	-0.5 to 6.0 V
Signal Pin Voltage	-0.5 to V_{CC}
Output Current	25 mA

Electrical Characteristics ($-5.45\text{ V} \leq V_{CC} \leq -4.75\text{ V}$, $R_{LOAD} = 511\text{ W}$, Fiber Sizes $\leq 100\text{ }\mu\text{m}$, N.A. ≤ 0.35 , $T_A = 25^\circ\text{C}$ unless otherwise noted)						
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
R_p	Responsivity	5.3 4.5	7.0	9.6 11.5	mV/ μW	$\lambda = 840\text{ nm}$, $f = 50\text{ MHz}$ $\lambda = 840\text{ nm}$, $f = 50\text{ MHz}$, $-40^\circ \leq T_A \leq +85^\circ\text{C}$
V_{NO}	RMS Output Noise Voltage		0.40	0.59 0.70	mV	Bandwidth Filtered @ 75 MHz, $P_R = 0\text{ }\mu\text{W}$ Unfiltered Bandwidth, $P_R = 0\text{ }\mu\text{W}$
P_N	Equivalent Optical Noise Input Power (RMS)		-43.0 0.050	-41.4 0.065	dBm μW	Bandwidth Filtered @ 75 MHz
P_R	Peak Input Power			-7.6 175 -8.2 150	dBm μW dBm μW	$T_A = 25^\circ\text{C}$ $T_A = 25^\circ\text{C}$ $-40^\circ \leq T_A \leq +85^\circ\text{C}$ $-40^\circ \leq T_A \leq +85^\circ\text{C}$
V_{odc}	DC Output Voltage	-4.2	-3.1	-2.4	V	$P_R = 0\text{ }\mu\text{W}$
I_{EE}	Power Supply Current		9	15	mA	$R_{load} = \infty$
t_r, t_f	Rise Time, Fall Time (10% - 90%)		3.3	6.3	ns	$P_R = 100\text{ }\mu\text{W}$, $R_{load} = 511\text{ W}$, $C_{load} = 5\text{ pF}$
PWD	Pulse Width Distortion		0.4	2.5	ns	$P_R = 150\text{ }\mu\text{W}$ peak, $PW = 10\text{ ns}$, 50% D.C.
BW	Bandwidth		125		MHz	-3 dB Electrical
PSRR	Power Supply Rejection Ratio		20		dB	$f = 10\text{ MHz}$