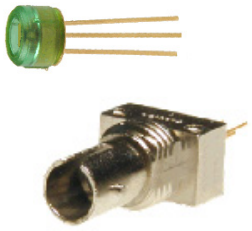
Fiber Optic Receiver

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.

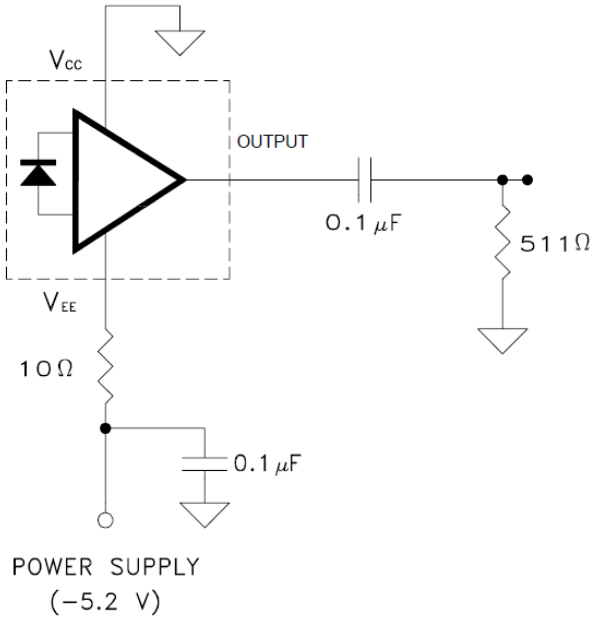
Applications:

- 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



RoHS

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.

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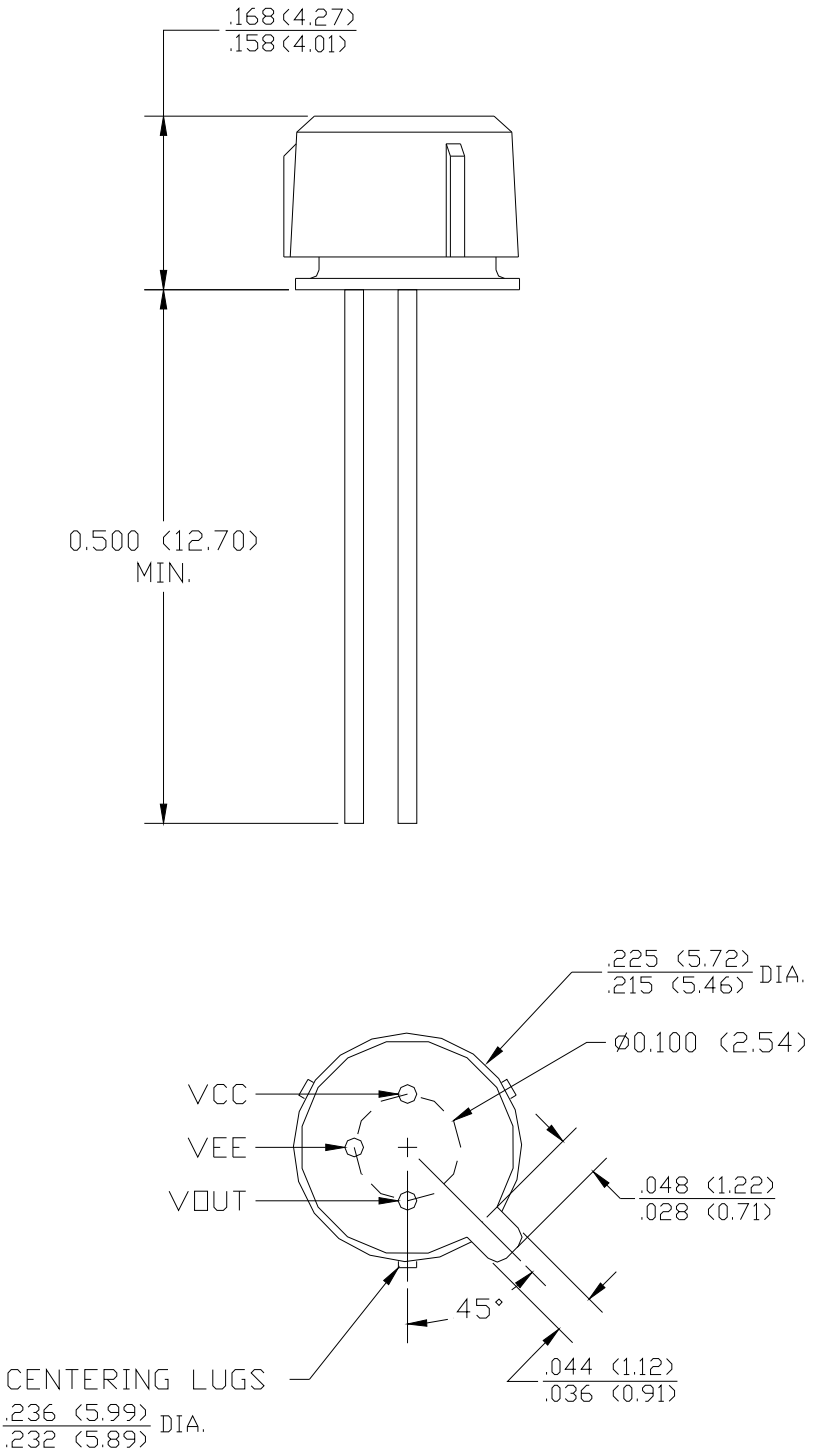
www.optekinc.com | www.ttelectronics.com

Mechanical Outline—OPF560



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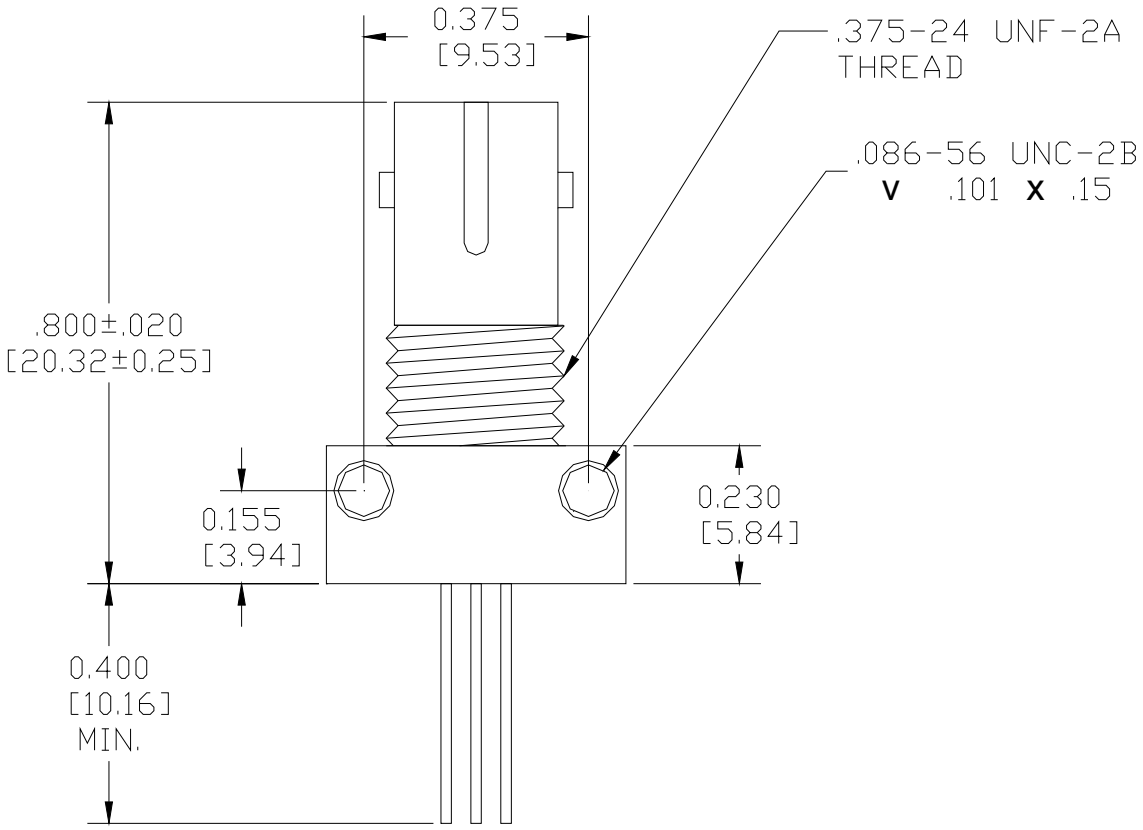
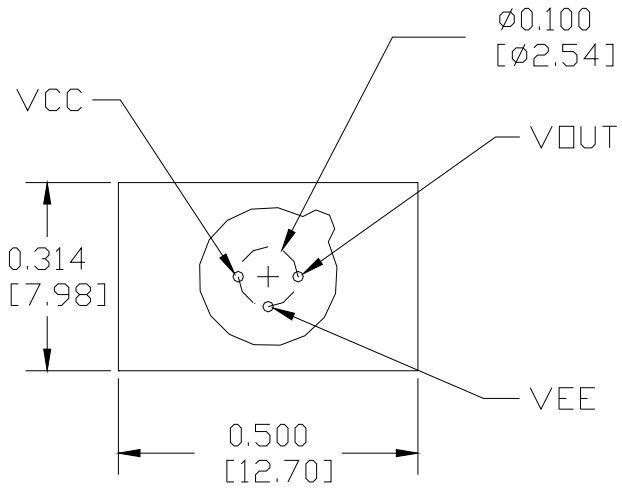
Mechanical Outline—OPF562





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Electrical Specifications

Absolute Maximum Ratings (T_A = 25° 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 V ≤ V_{CC} ≤ -4.75 V, R_{LOAD} = 511 W, Fiber Sizes ≤ 100 µm, N.A. ≤ 0.35, T_A = 25° 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	λ = 840 nm, f = 50 MHz λ = 840 nm, f = 50 MHz, -40° ≤ T_A ≤ +85 °C
V_{NO}	RMS Output Noise Voltage		0.40	0.59 0.70	mV	Bandwidth Filtered @ 75 MHz, P_R = 0 µW Unfiltered Bandwidth, PR = 0 µW
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°C T_A = 25°C -40° ≤ T_A ≤ +85 °C -40° ≤ T_A ≤ +85 °C
V_{odc}	DC Output Voltage	-4.2	-3.1	-2.4	V	P_R = 0 µW
I_{EE}	Power Supply Current		9	15	mA	R_{load} = ∞
t_r, t_f	Rise Time, Fall Time (10% - 90%)		3.3	6.3	ns	P_R = 100 µW, R_{load} = 511 W, C_{load} = 5 pF
PWD	Pulse Width Distortion		0.4	2.5	ns	P_R = 150 µW peak, PW = 10 ns, 50% D.C.
BW	Bandwidth		125		MHz	-3 dB Electrical
PSRR	Power Supply Rejection Ratio		20		dB	f = 10 MHz

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