

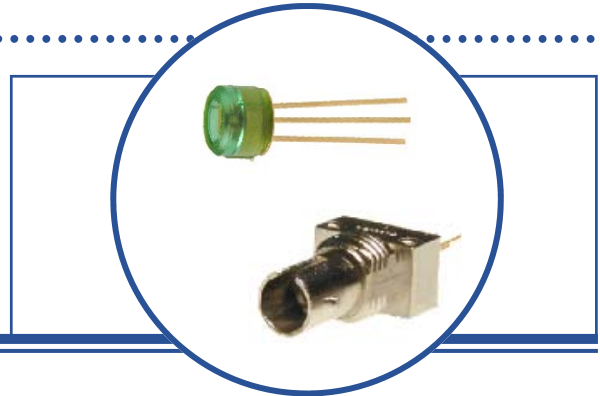
Fiber Optic Receiver

OPF520 Series



OPF520 Series

- Low Cost plastic cap package
- Designed to self align in the bore of standard fiber optic receptacles
- Press fit simplifies installation
- Optimized for fiber optic applications using 50 to 200 micron fiber



The OPF520 series fiber optic receiver is a high performance device packaged for data communications links. As such, it is designed to work with fiber core diameters from 50µm to 200µm and over a broad input power range. The construction contains a monolithic photo-IC comprised of a photodiode, biasing network, DC amplifier and an open collector output transistor. The output circuitry makes this device compatible with TTL and CMOS logic.

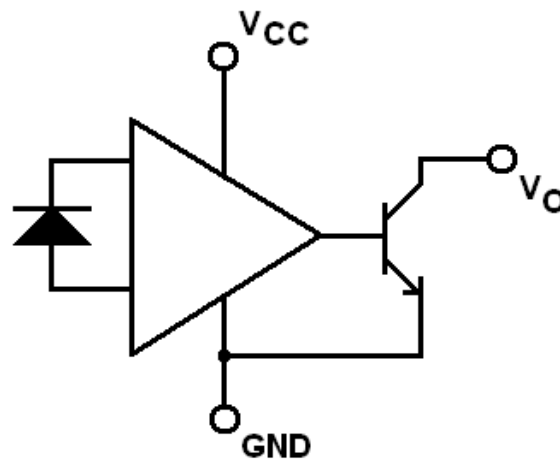
This receiver is designed to operate from a single 5V supply. It is essential that a bypass capacitor be connected from V_{CC} to GND in order to ensure the best possible operation.

Applications

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

Part Ordering Information

Part Number	Description
OPF520	Plastic Cap Component
OPF522	Metal ST Receptacle



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Absolute Maximum Ratings

Storage Temperature.....	-55° C to +115° C
Operating Temperature.....	-40° C to +85° C
Lead Soldering Temperature (for 10 seconds)	260° C
Supply Voltage	-0.5 V to +7.0 V
Output Current	25 mA
Output Voltage	-0.5 V to +18.0 V
Open Collector Power Distribution	40mW
Fan Out (TTL).....	5 ⁽¹⁾

Electrical/Optical Characteristics

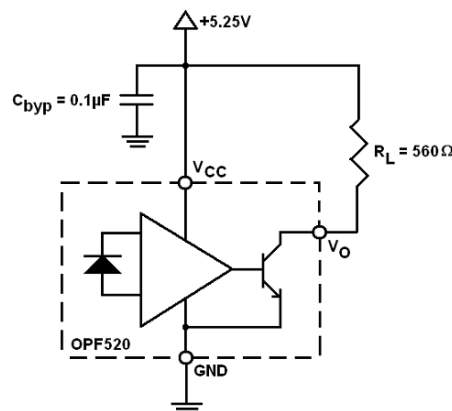
4.75 ≤ V_{CC} ≤ 5.25, Fiber Sizes ≤ 200μm, NA ≤ 0.35, T_A = 25°C unless otherwise specified

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	CONDITIONS
I _{OH}	High Level Output Current		5	250	μA	V _O = 18V, P _{OC} < -40 dBm, See Note 2
V _{OL}	Low Level Output Voltage		0.2	0.5	V	I _O = 8 mA, P _{OC} > +24 dBm, See Note2
I _{CCH}	Supply Current, Output High		3.5	6.3	mA	V _{CC} = 5.25 V, P _{OC} < -40 dBm, See Note 2
I _{CCL}	Supply Current, Output Low		6.9	10	mA	V _{CC} = 5.25 V, P _{OC} < -24 dBm, See Note 2
P _{OC(H)}	Peak Input Power Level, Output High (Guaranteed Output High)			-40	dBm	λ _p = 850 nm
				0.1	μW	
P _{OC(L)}	Peak Input Power Level, Output Low (Guaranteed Output Low)	-25.4		-9.2	dBm	λ _p = 850 nm, I _O = 8 mA
		2.9		120	μW	
		-24		-10	dBm	λ _p = 850 nm, I _O = 8 mA
		4.0		100	μW	
t _r , t _f	Rise, Fall Time		30		ns	
t _{PDHL}	Propagation Delay, Output High to Low		65		ns	P _{OC} = 20 dBm (peak), f = 2.5 MHz, See Note 3
t _{PDLH}	Propagation Delay, Output Low to High		100		ns	
PWD	Pulse Width Distortion		±30		%	

Notes:

- 8mA load (5 x 1.6 mA), R_L = 560 Ω
- Use recommended test circuit below, but connect V_O to an independent voltage source with R_L = 0.
- Use recommended test circuit below.

Recommended Test Circuit

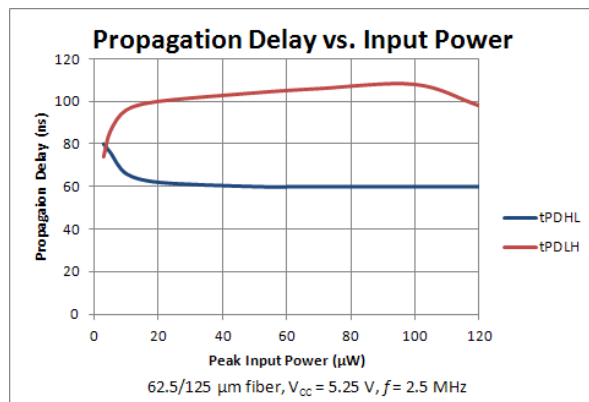
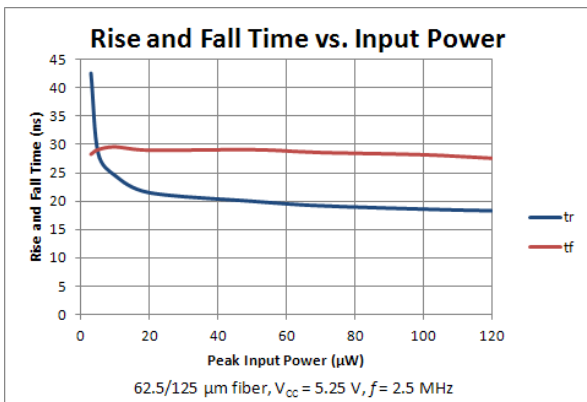
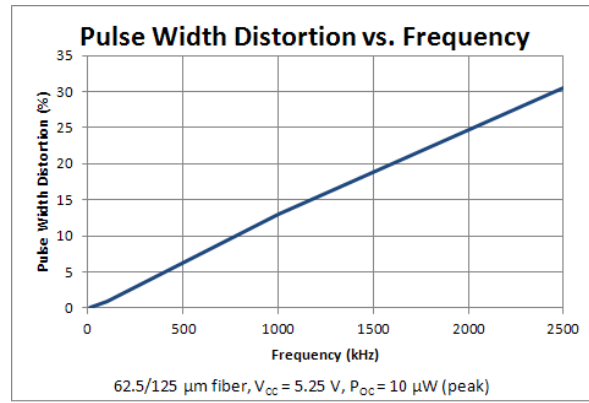
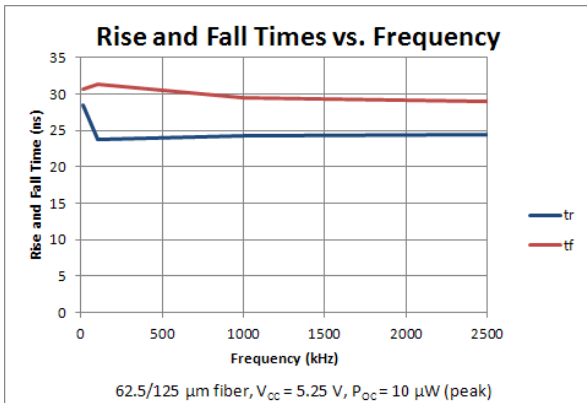
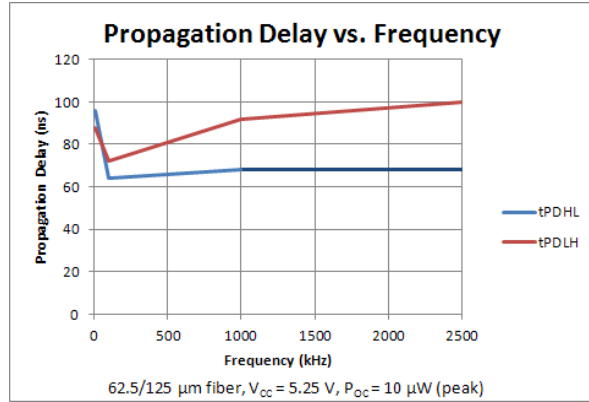
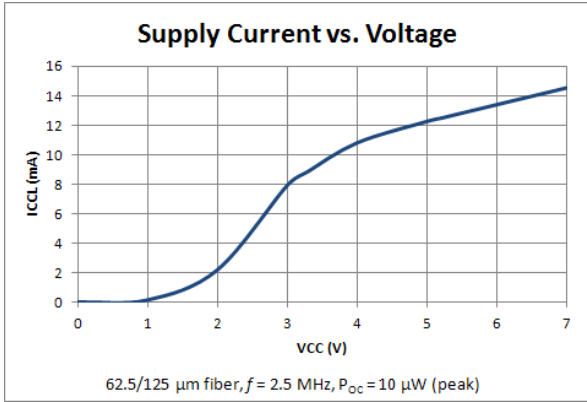


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Switching Characteristics

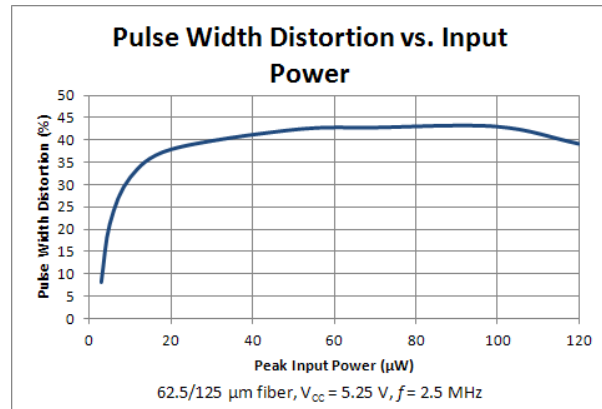
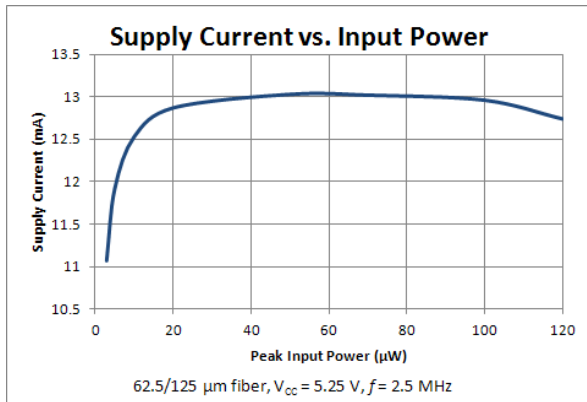
(See Recommended Test Circuit)



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Switching Characteristics
(continued)



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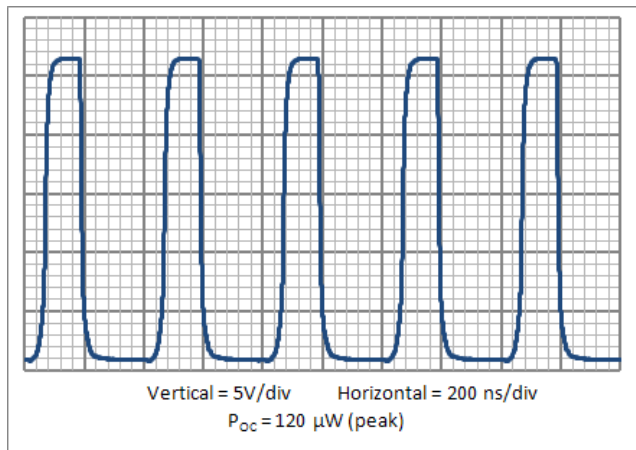
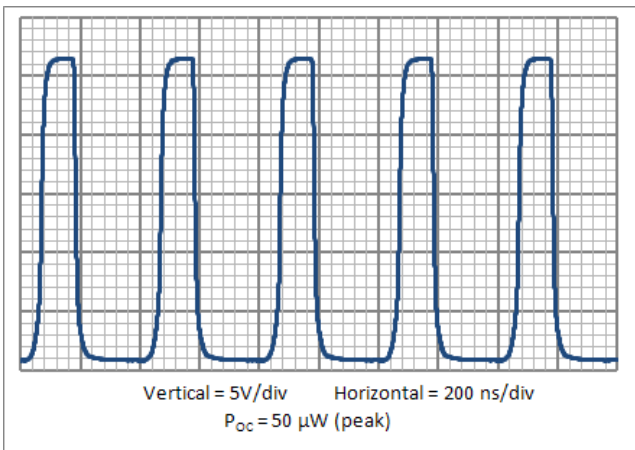
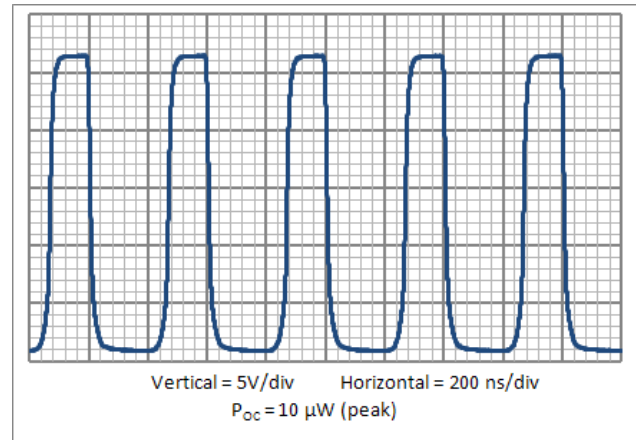
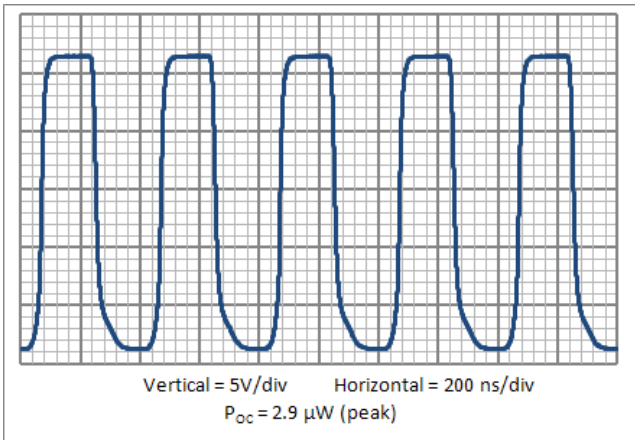


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**Typical Waveforms for
Various Input Powers**

(62.5/125 μm fiber, $V_{CC} = 5.25\text{ V}$, $f = 2.5\text{ MHz}$)
(See Recommended Test Circuit)

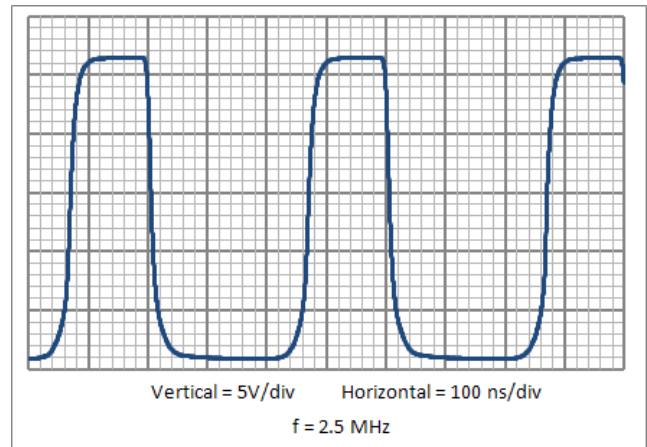
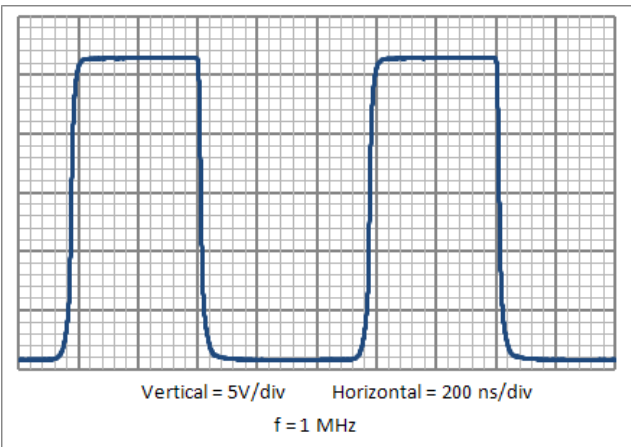
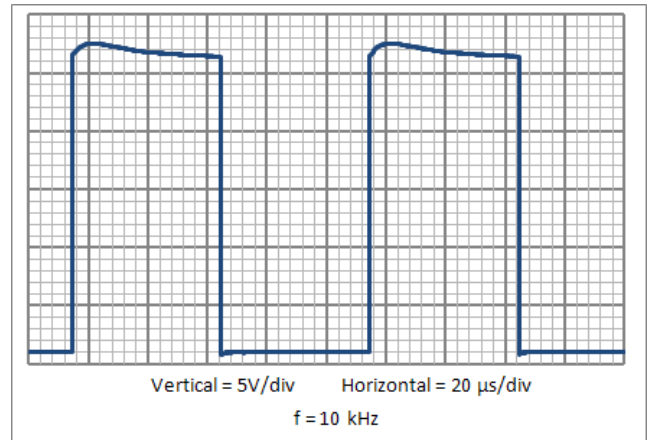
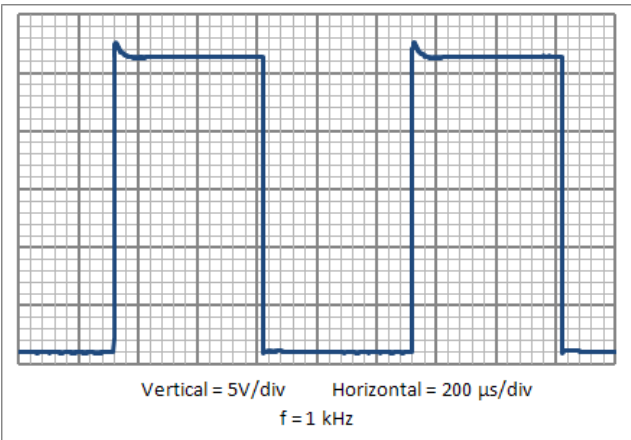


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Typical Waveforms for Various Frequencies

(62.5/125 μm fiber, $V_{CC} = 5.25\text{ V}$, $P_{OC} = 10\mu\text{W}$ (peak)
(See Recommended Test Circuit)

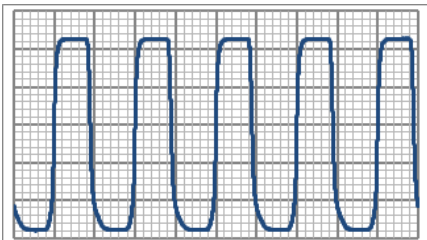


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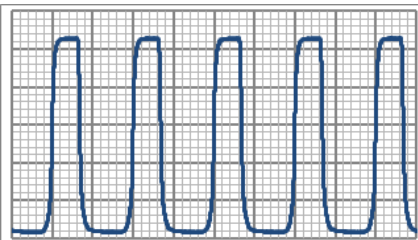
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**Typical Waveforms for
Various Fiber Cables and
Input Powers**

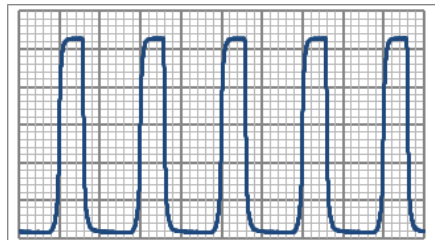
($V_{CC} = 5.25\text{ V}$, $f = 2.5\text{ MHz}$)
(See Recommended Test Circuit)



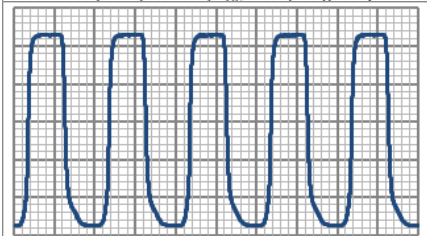
Vertical = 5V/div Horizontal = 200 ns/div
50/125 μm fiber, $P_{OC} = 2.9\ \mu\text{W}$ (peak)



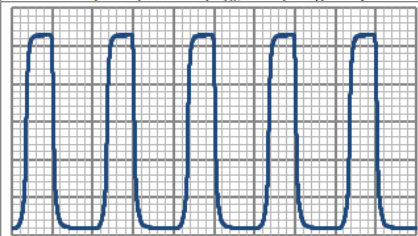
Vertical = 5V/div Horizontal = 200 ns/div
50/125 μm fiber, $P_{OC} = 10\ \mu\text{W}$ (peak)



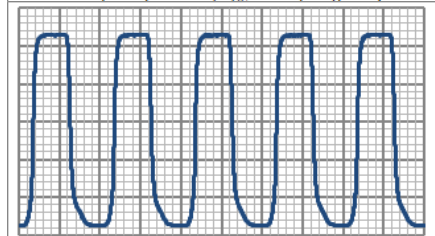
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50/125 μm fiber, $P_{OC} = 120\ \mu\text{W}$ (peak)



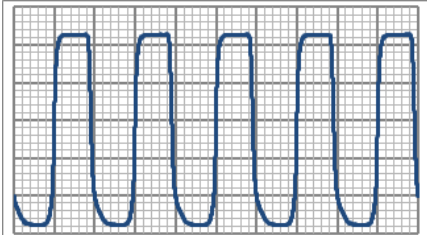
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62.5/125 μm fiber, $P_{OC} = 2.9\ \mu\text{W}$ (peak)



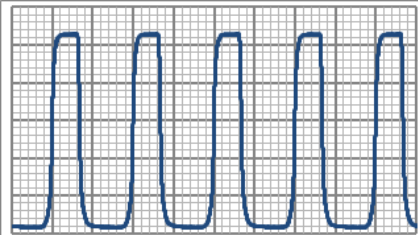
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62.5/125 μm fiber, $P_{OC} = 10\ \mu\text{W}$ (peak)



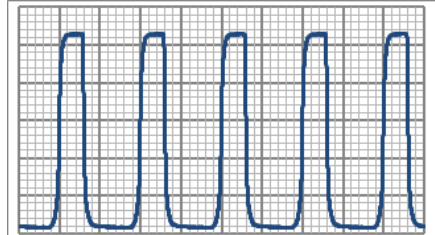
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62.5/125 μm fiber, $P_{OC} = 2.9\ \mu\text{W}$ (peak)



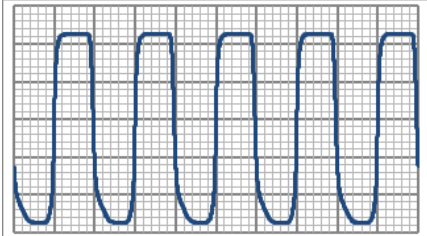
Vertical = 5V/div Horizontal = 200 ns/div
100/140 μm fiber, $P_{OC} = 2.9\ \mu\text{W}$ (peak)



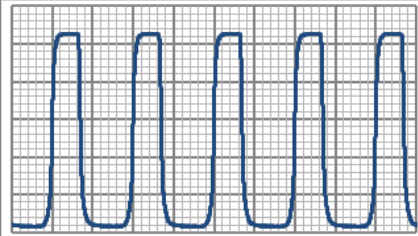
Vertical = 5V/div Horizontal = 200 ns/div
100/140 μm fiber, $P_{OC} = 10\ \mu\text{W}$ (peak)



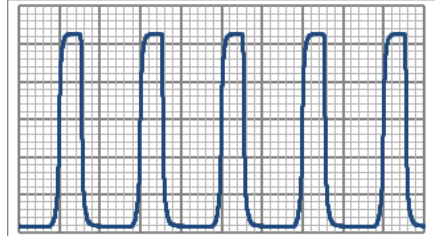
Vertical = 5V/div Horizontal = 200 ns/div
100/140 μm fiber, $P_{OC} = 120\ \mu\text{W}$ (peak)



Vertical = 5V/div Horizontal = 200 ns/div
200/230 μm fiber, $P_{OC} = 2.9\ \mu\text{W}$ (peak)



Vertical = 5V/div Horizontal = 200 ns/div
200/230 μm fiber, $P_{OC} = 10\ \mu\text{W}$ (peak)



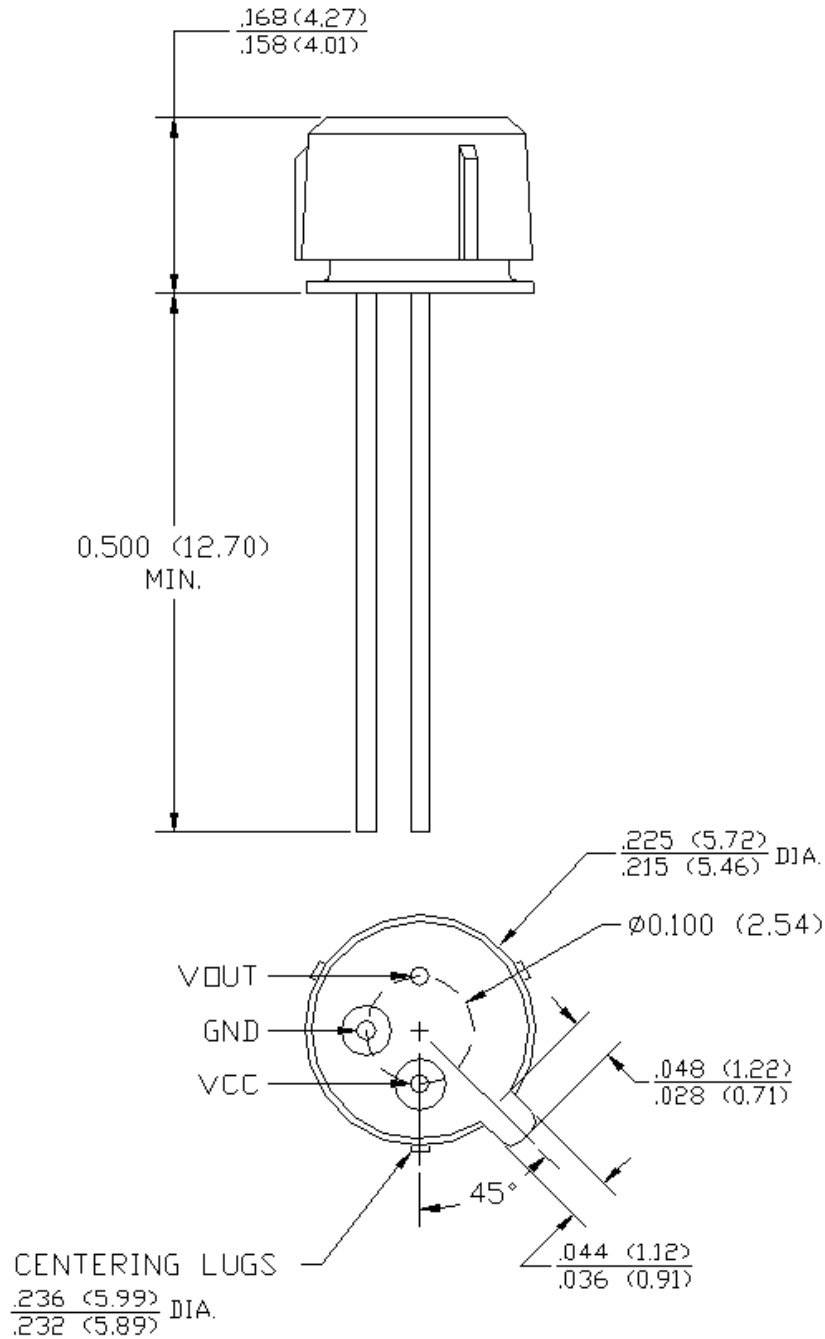
Vertical = 5V/div Horizontal = 200 ns/div
200/230 μm fiber, $P_{OC} = 120\ \mu\text{W}$ (peak)



RoHS

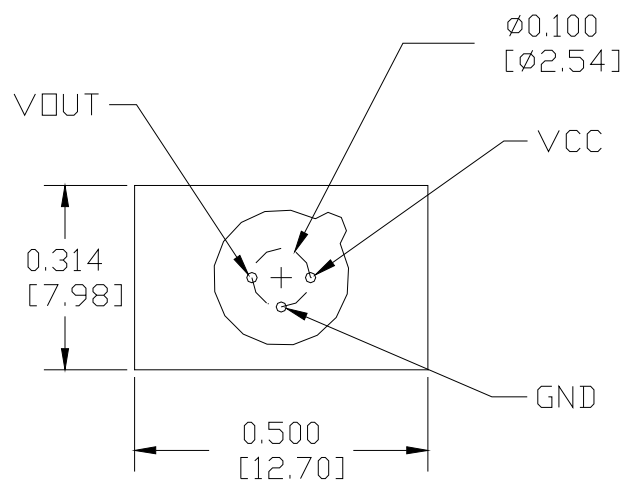
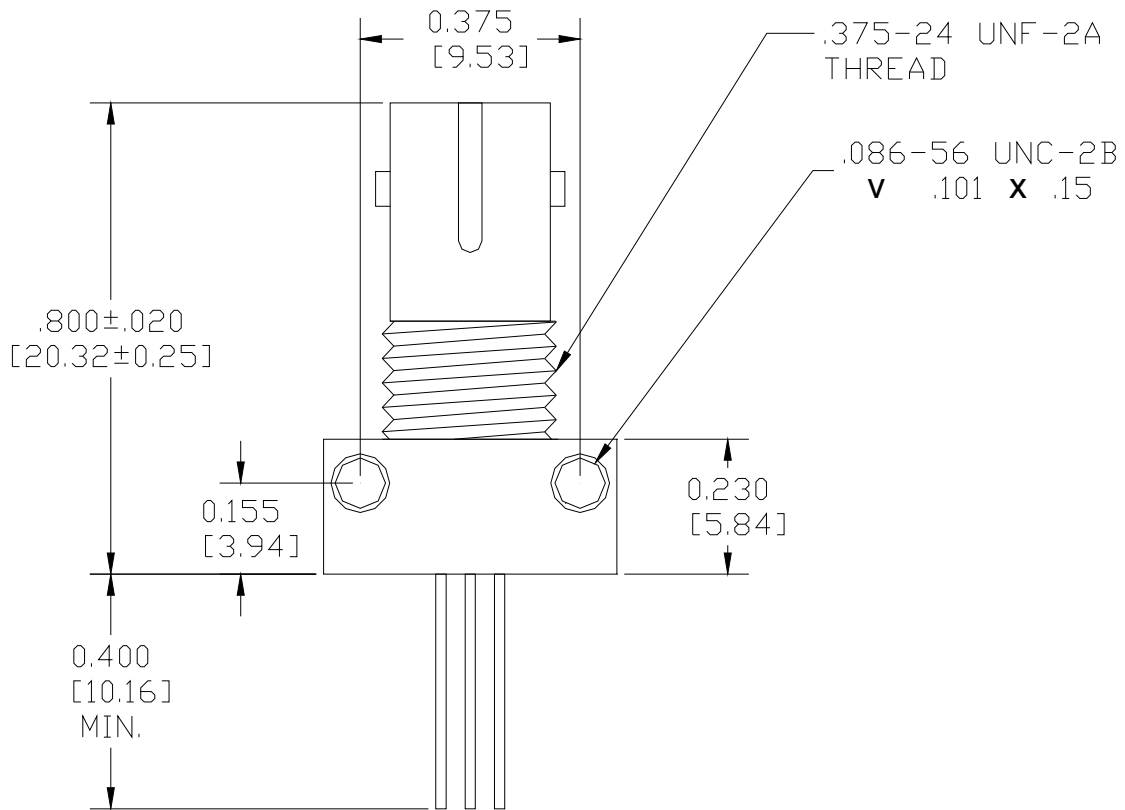
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Mechanical Outline — OPF520



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Mechanical Outline — OPF522



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