

Fiber Optic Receiver

OPF520 Series



Features:

- 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
- 5 Mb/s

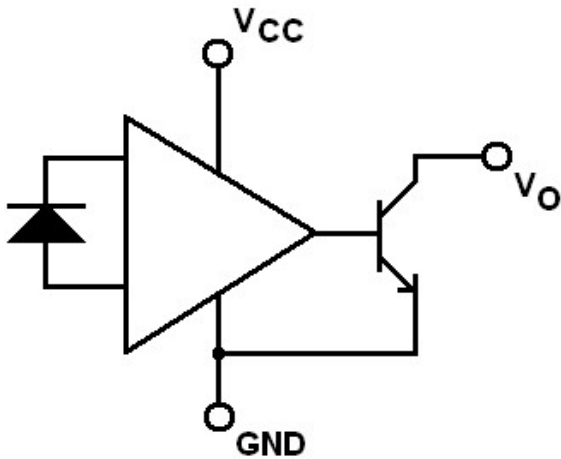
Description:

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 50 μm to 200 μm 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 5 V supply. It is essential that a bypass capacitor be connected from V_{CC} to GND in order to ensure the best possible operation.

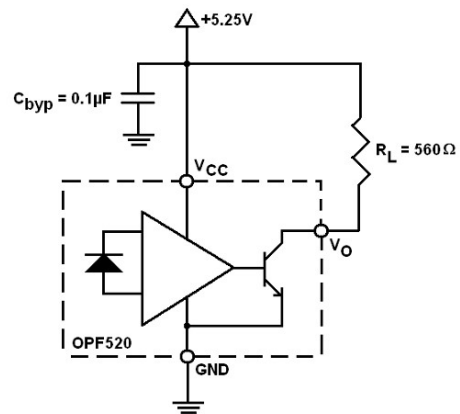
Applications:

- 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 (Standard screw)
OPF522-1	Metal ST Receptacle (Phillips screw)

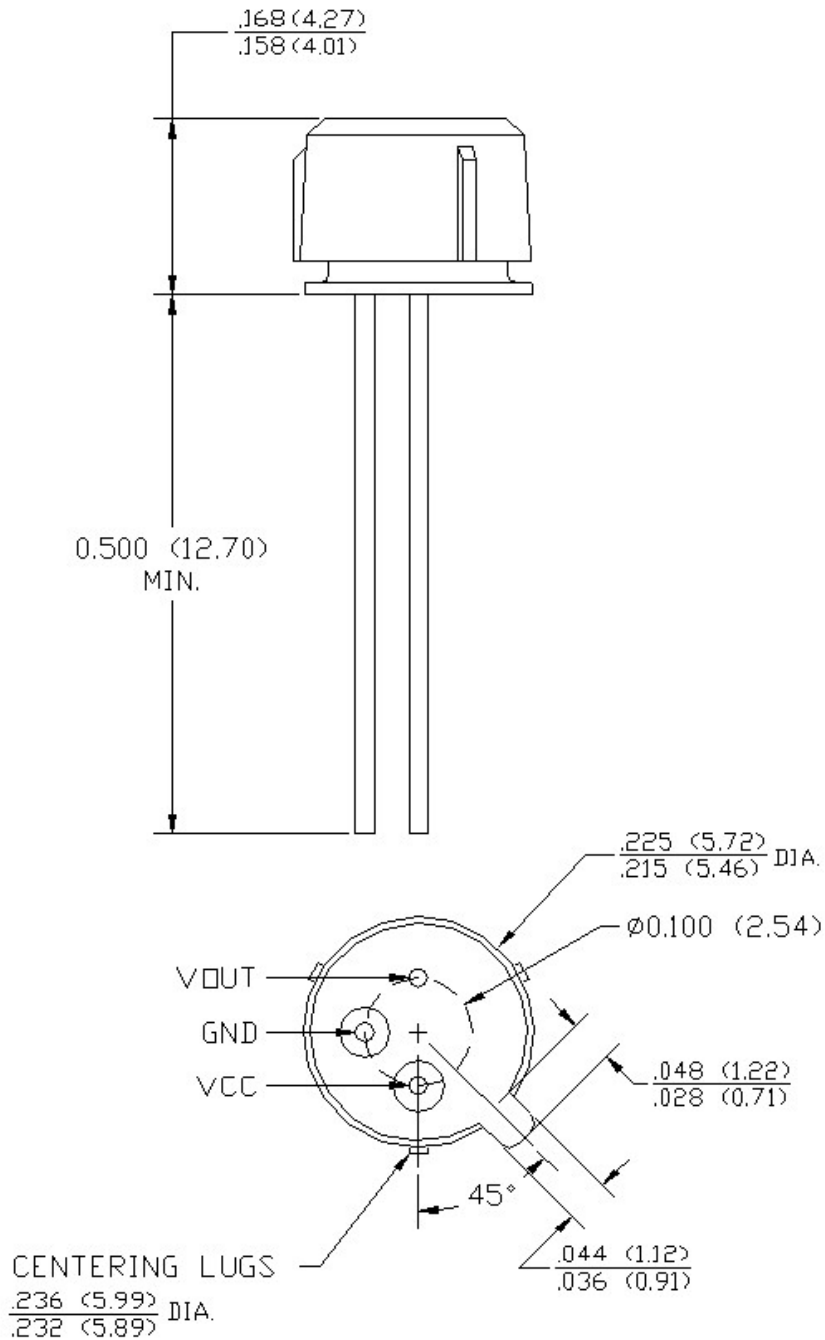
Recommended Test Circuit



General Note

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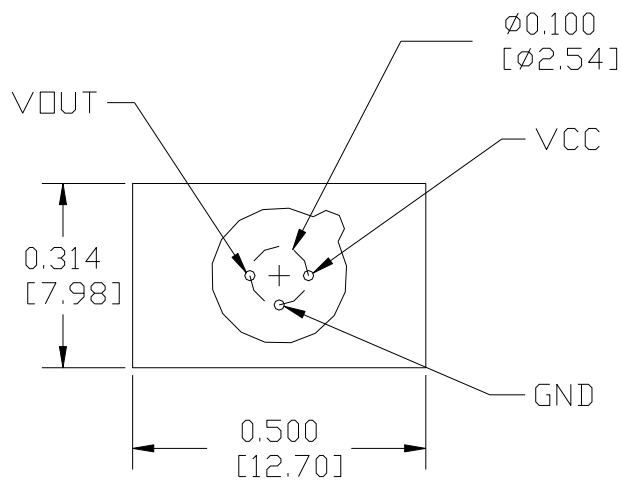
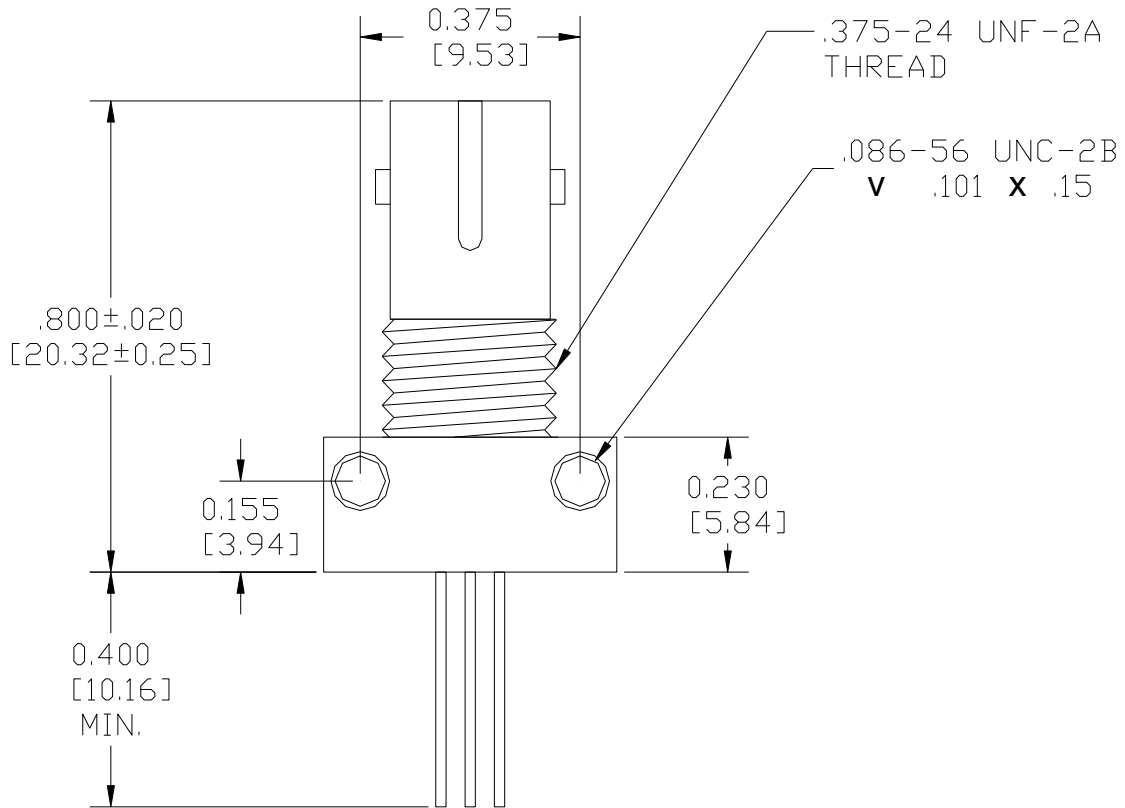
Mechanical Outline—OPF520



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Mechanical Outline—OPF522



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Electrical Specifications

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

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

SYM-BOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
I_{OH}	High Level Output Current		5	250	μA	$V_O = 18\text{V}$, $P_{OC} < -40\text{ dBm}$, See Note 2
V_{OL}	Low Level Output Voltage		0.2	0.5	V	$I_O = 8\text{ mA}$, $P_{OC} > -24\text{ dBm}$, See Note 2
I_{CCH}	Supply Current, Output High		3.5	6.3	mA	$V_{CC} = 5.25\text{ V}$, $P_{OC} < -40\text{ dBm}$, See Note 2
I_{CCL}	Supply Current, Output Low		6.9	10	mA	$V_{CC} = 5.25\text{ V}$, $P_{OC} < -24\text{ dBm}$, See Note 2
$P_{OC(H)}$	Peak Input Power Level, Output High			-40	dBm	$\lambda_p = 850\text{ nm}$
	(Guaranteed Output High)			0.1	μW	
$P_{OC(L)}$	Peak Input Power Level, Output Low	-25.4		-9.2	dBm	$\lambda_p = 850\text{ nm}$, $I_O = 8\text{ mA}$
		2.9		120	μW	
	(Guaranteed Output Low)	-24		-10	dBm	$\lambda_p = 850\text{ nm}$, $I_O = 8\text{ mA}$
		4.0		100	μW	$-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
t_r, t_f	Rise, Fall Time		30		ns	$P_{OC} = -20\text{ dBm (peak)}$, $f = 2.5\text{ MHz}$, See Note 3
t_{PDHL}	Propagation Delay, Output High to Low		65		ns	
t_{PDLH}	Propagation Delay, Output Low to High		100		ns	
PWD	Pulse Width Distortion		± 30		%	

Notes:

- 8 mA load ($5 \times 1.6\text{ mA}$), $R_L = 560\ \Omega$
- Use recommended test circuit below, but connect V_O to an independent voltage source with $R_L = 0$.
- Use recommended test circuit below.

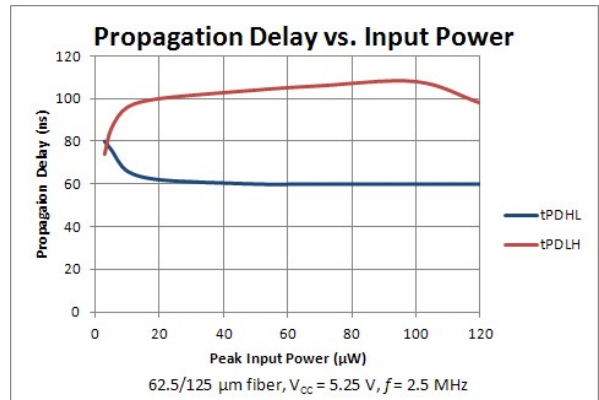
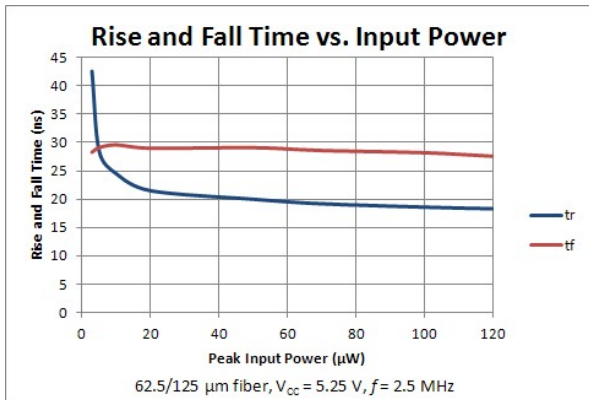
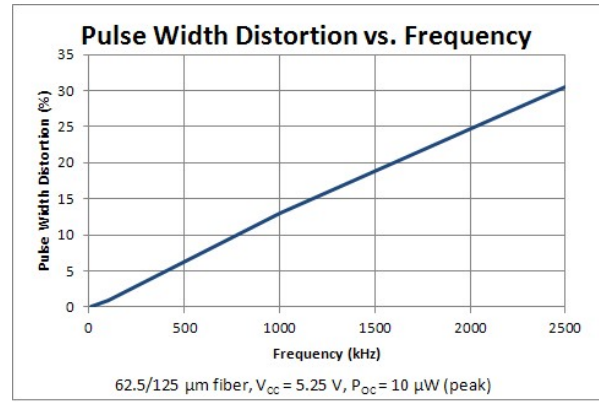
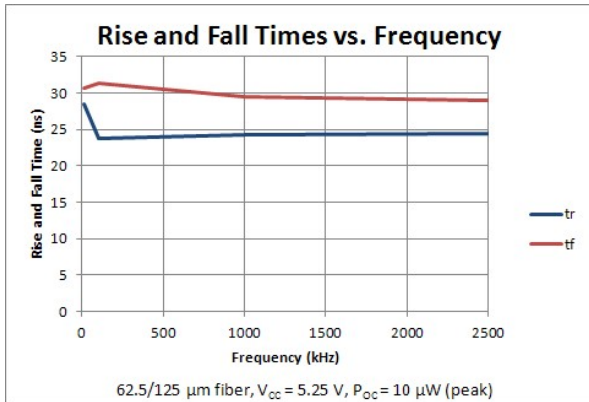
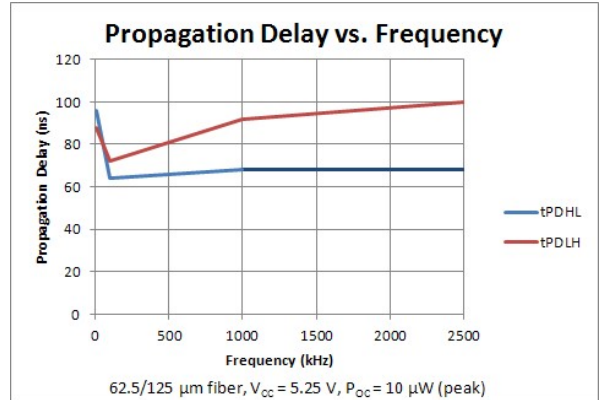
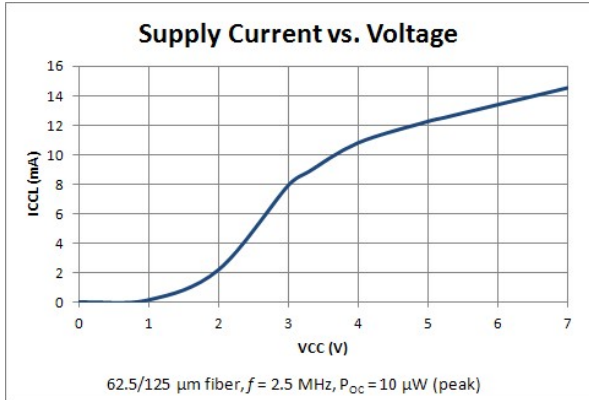
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Performance

Switching Characteristics

(See Recommended Test Circuit)



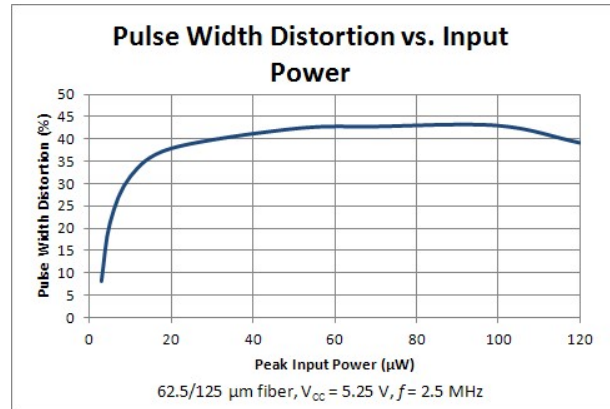
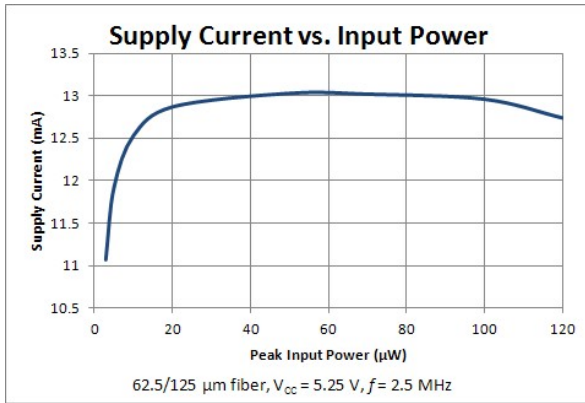
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Performance

Switching Characteristics

(continued)



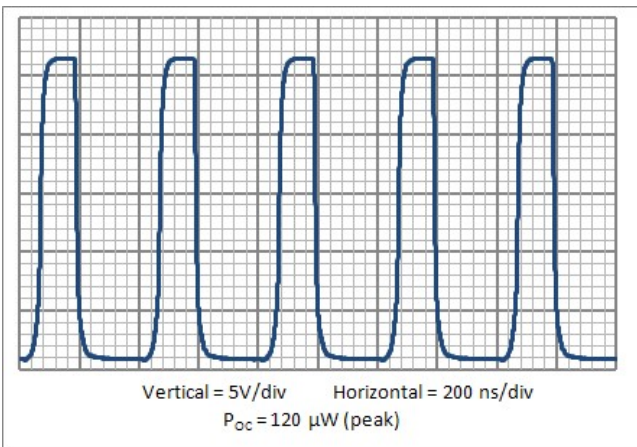
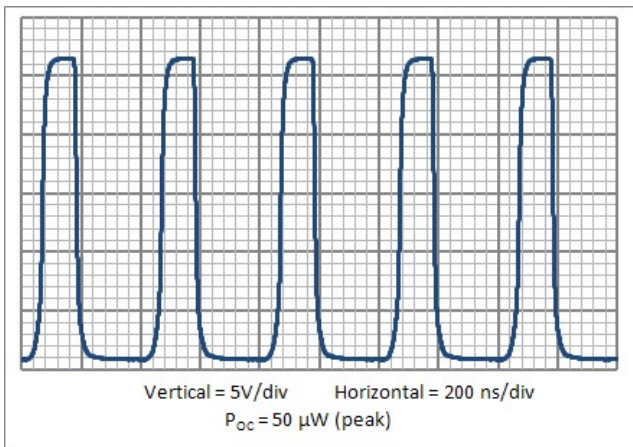
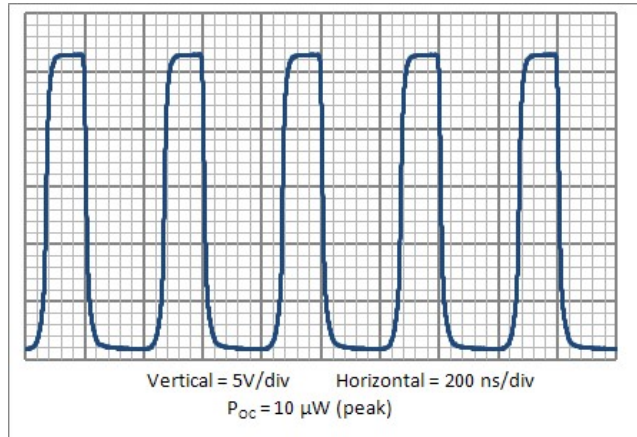
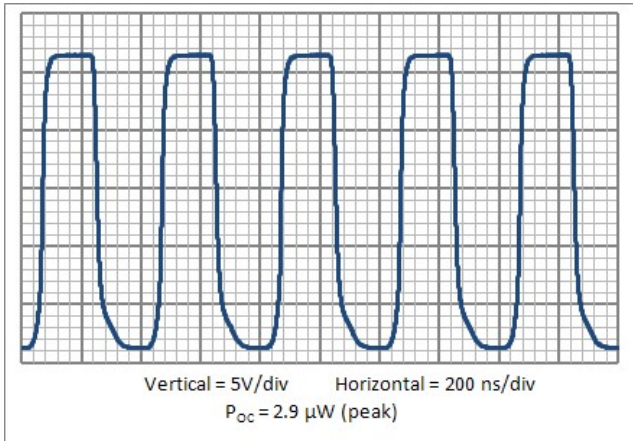
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Performance

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)



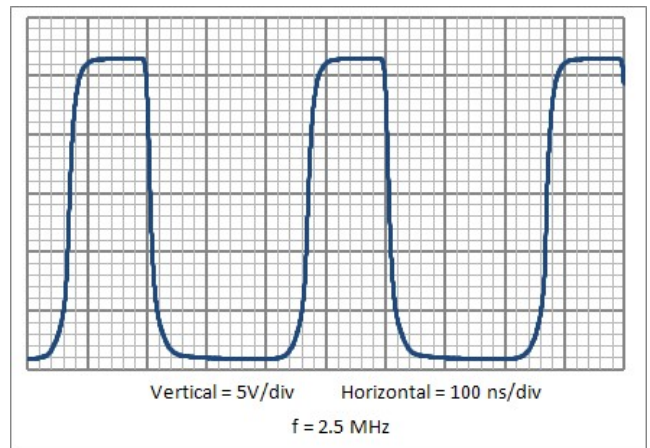
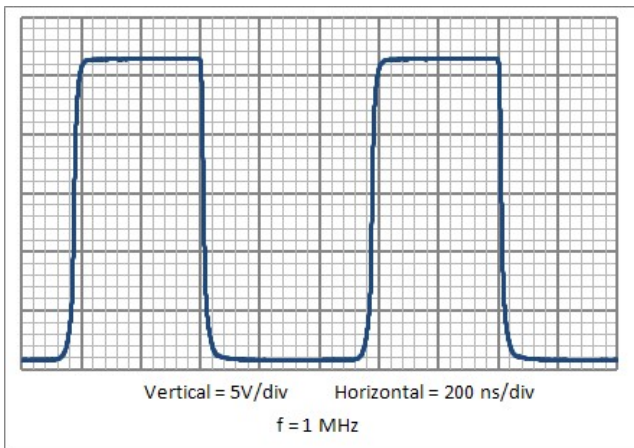
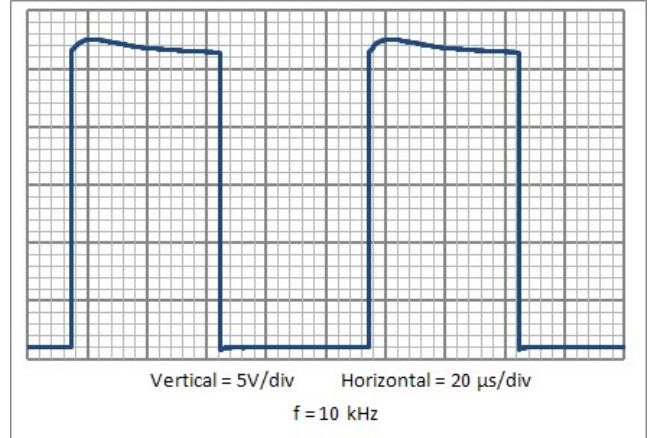
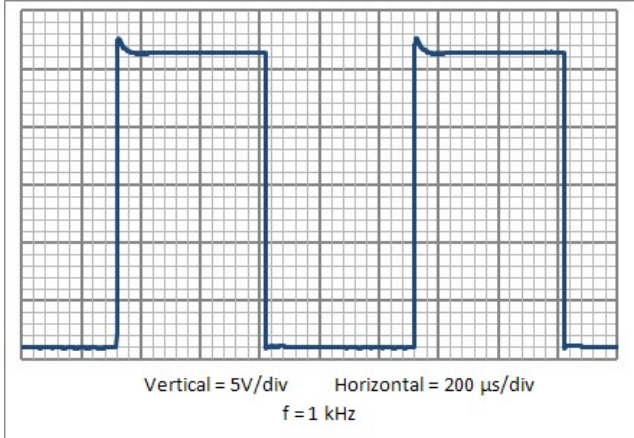
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Performance

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)



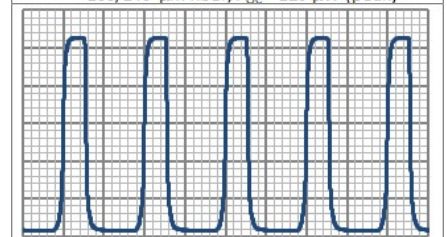
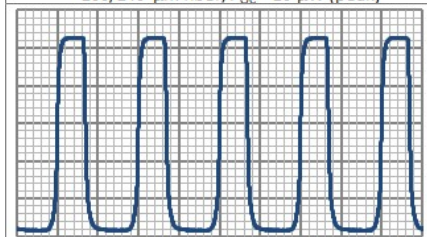
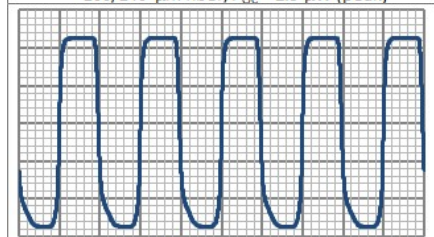
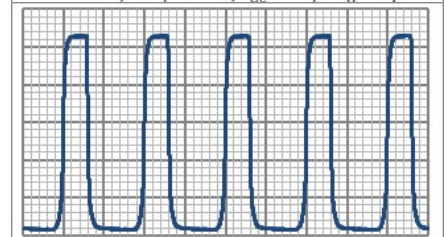
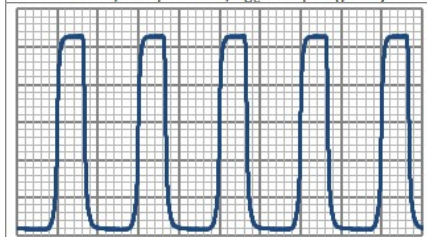
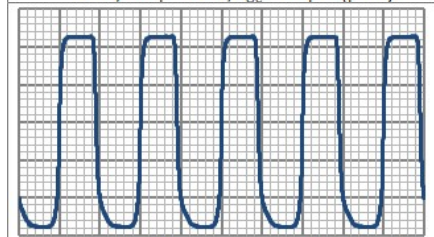
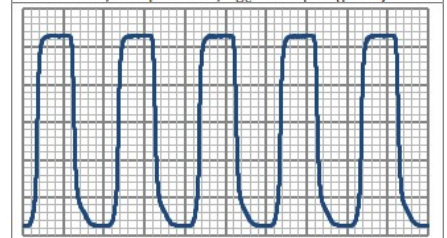
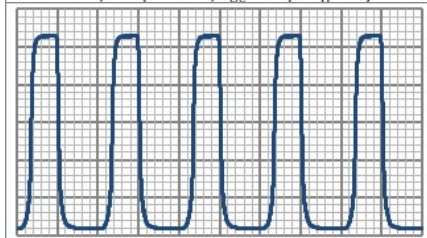
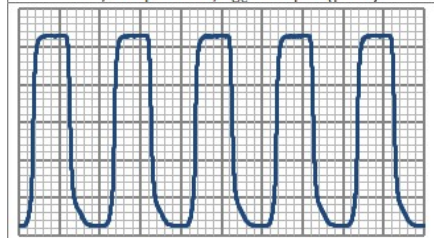
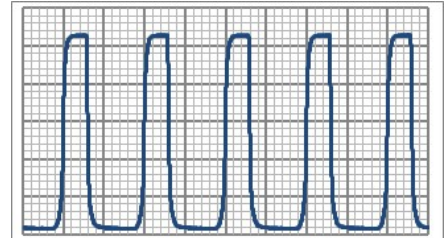
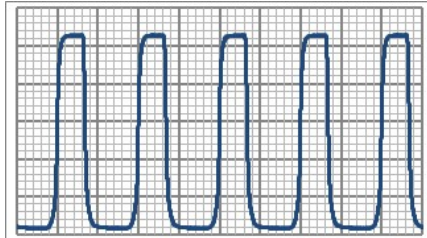
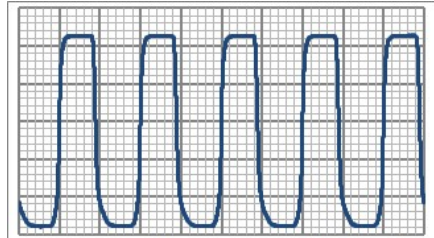
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Performance

Typical Waveforms for Various Fiber Cables and Input Powers

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




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