

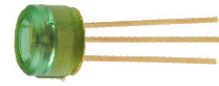
# Fiber Optic Receiver

## 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



### 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 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.

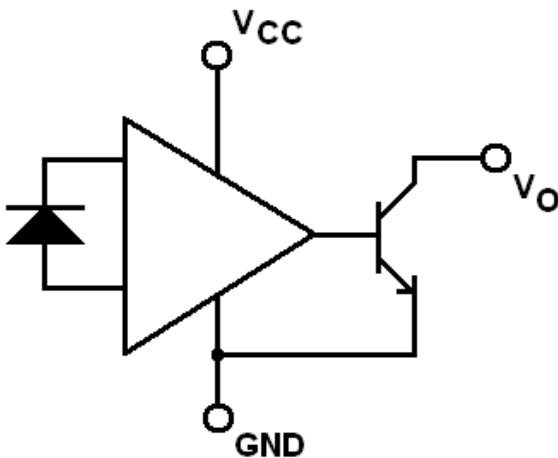
This receiver is designed to operate from a single 5V supply. It is essential that a bypass capacitor be connected from  $V_{CC}$  to GND in order to ensure the best possible operation.

### Applications:

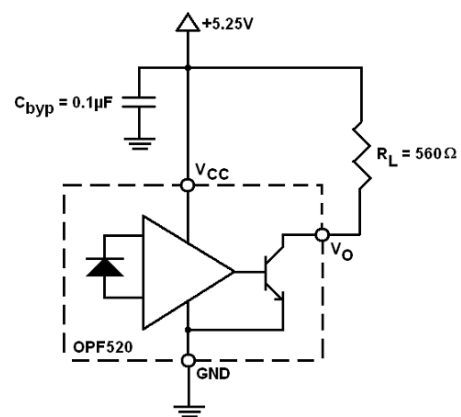
- Industrial Ethernet equipment
- Copper-to-fiber media conversion
- Intra-system fiber optic links
- Video surveillance systems

### Part Ordering Information

Part Number	Description
OPF520	Plastic Cap Component
OPF522	Metal ST Receptacle



### Recommended Test Circuit

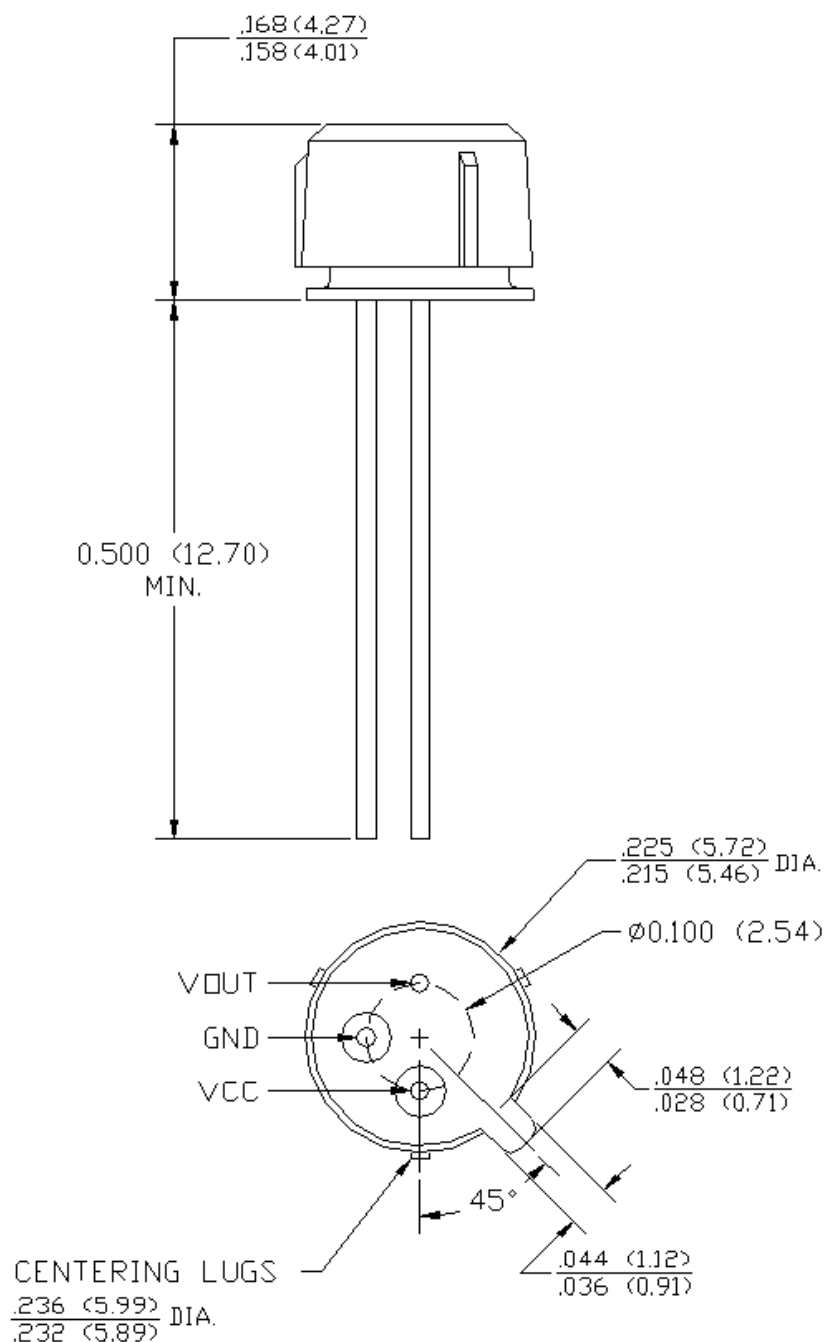


RoHS

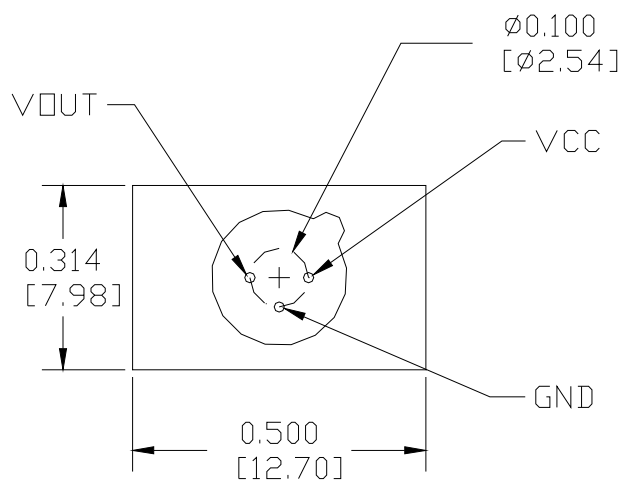
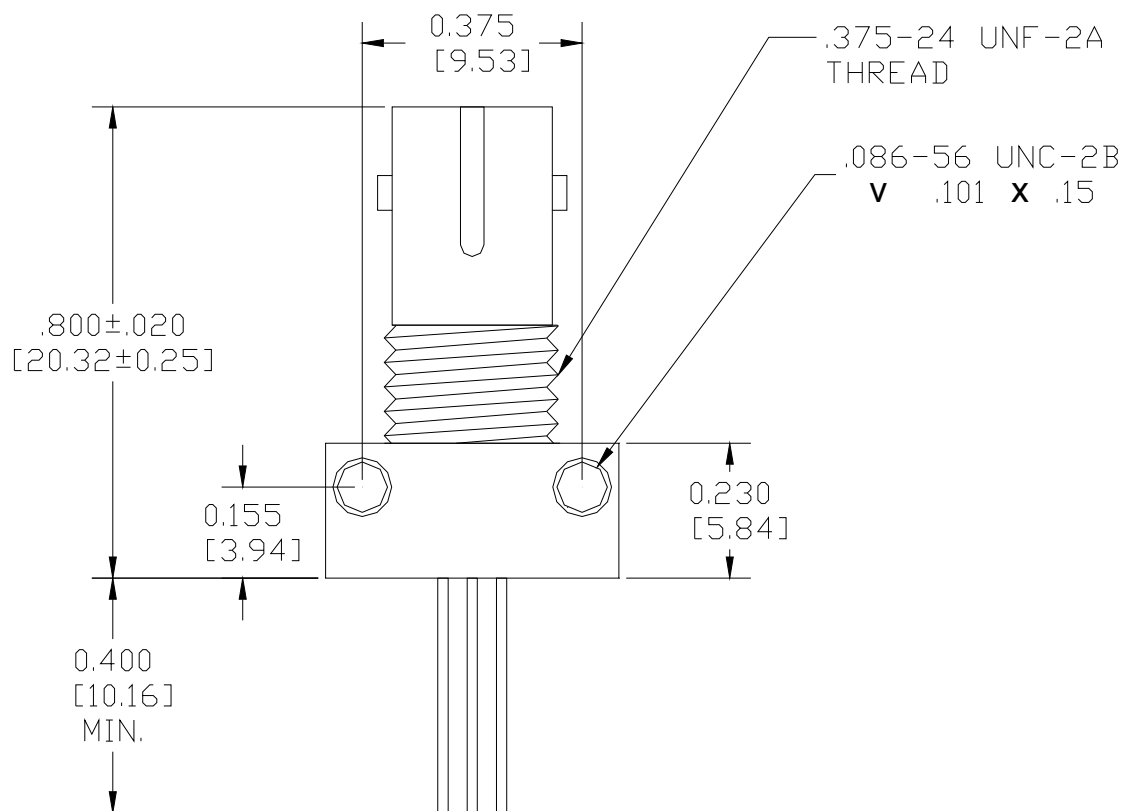
General Note  
TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

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### Mechanical Outline—OPF520



### Mechanical Outline—OPF522



### Electrical Specifications

Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise noted)	
Storage Temperature	$55^\circ\text{C}$ to $+115^\circ\text{C}$
Operating Temperature	$-40^\circ\text{C}$ to $+85^\circ\text{C}$
Lead Soldering Temperature (for 10 seconds)	$260^\circ\text{C}$
Supply Voltage	$-0.5\text{ V}$ to $+7.0\text{ V}$
Output Current	25 mA
Output Voltage	$-0.5\text{ V}$ to $+18.0\text{ V}$
Open Collector Power Distribution	40mW
Fan Out (TTL)	5 <sup>(1)</sup>

Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)						
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
$I_{OH}$	High Level Output Current		5	250	$\mu\text{A}$	$V_O = 18\text{V}$ , $P_{OC} < -40\text{ dBm}$ , 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	$\mu\text{W}$	
$P_{OC(L)}$	Peak Input Power Level, Output Low	-25.4		-9.2	dBm	$\lambda_p = 850\text{ nm}$ , $I_O = 8\text{ mA}$
		2.9		120	$\mu\text{W}$	
	(Guaranteed Output Low)	-24		-10	dBm	$\lambda_p = 850\text{ nm}$ , $I_O = 8\text{ mA}$
		4.0		100	$\mu\text{W}$	
$t_r, t_f$	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		$\pm 30$		%	

#### Notes:

- 8mA 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.

#### General Note

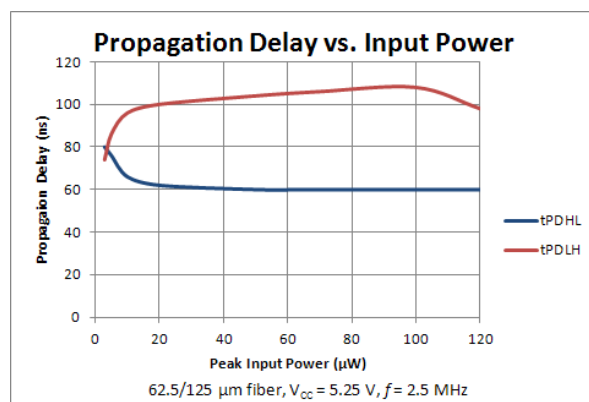
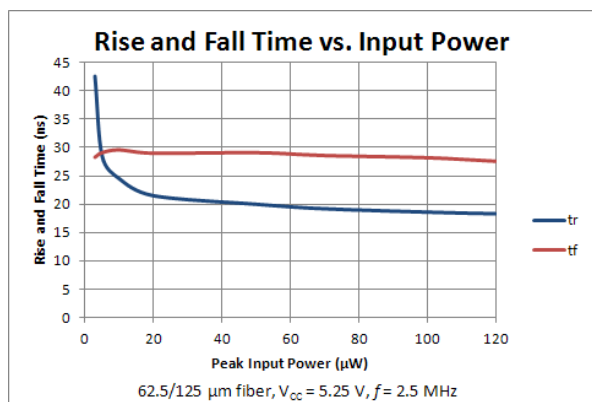
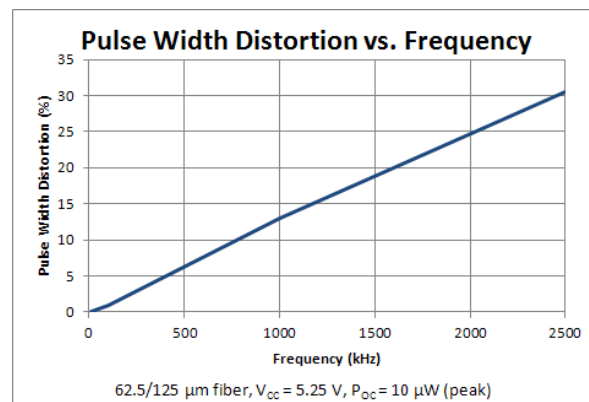
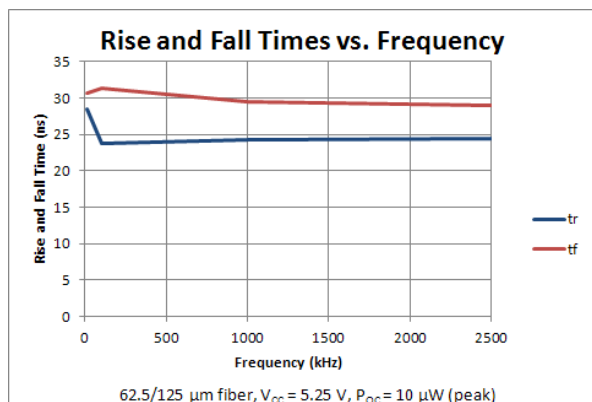
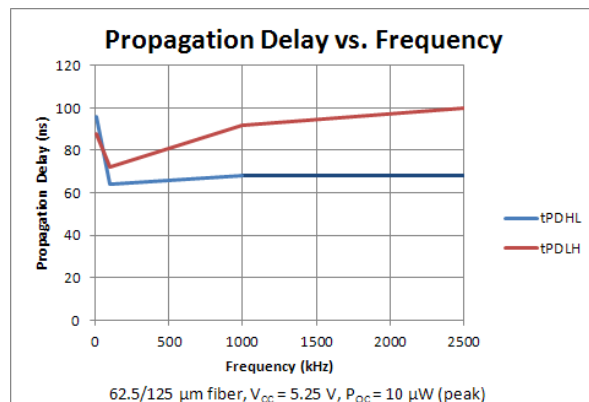
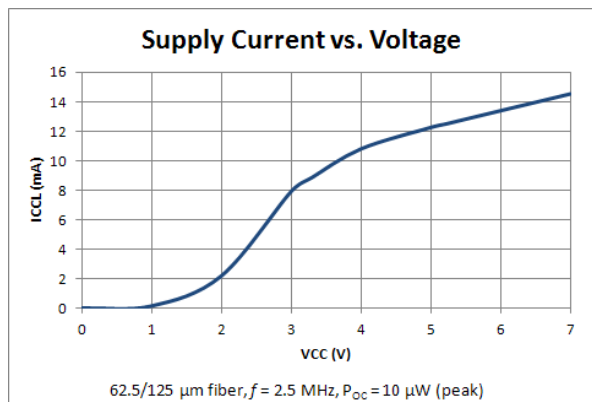
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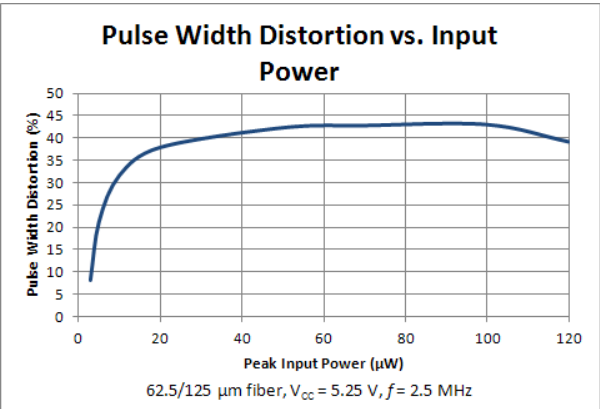
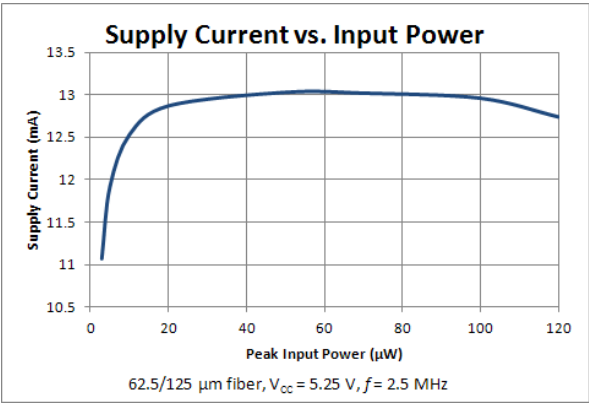
### Performance

#### Switching Characteristics

(See Recommended Test Circuit)



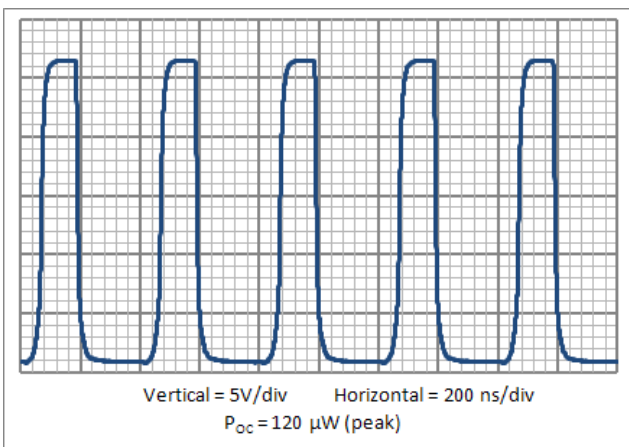
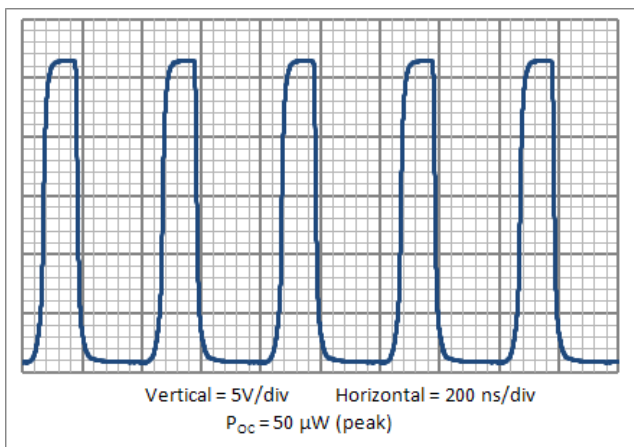
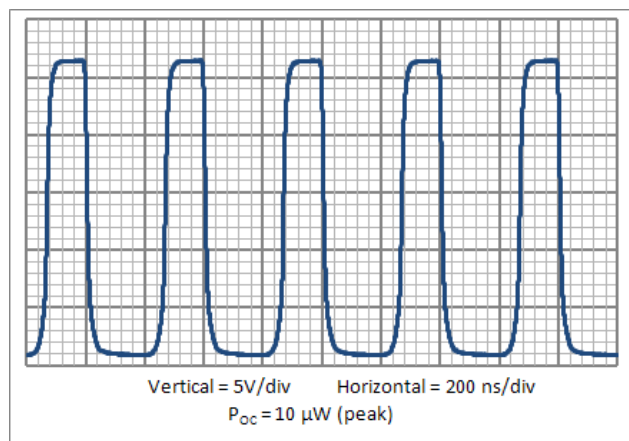
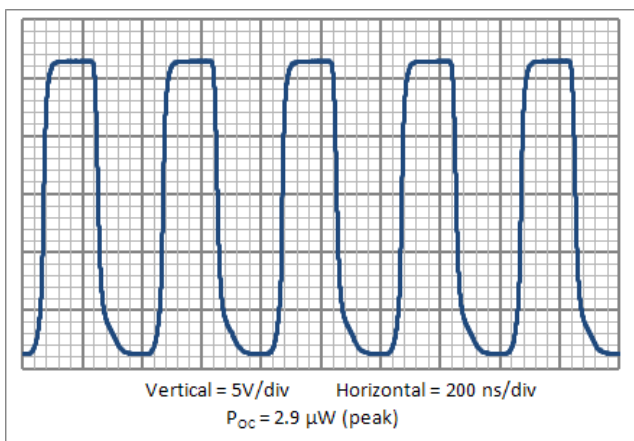
Performance  
Switching Characteristics  
(continued)



### Performance

#### Typical Waveforms for Various Input Powers

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



#### General Note

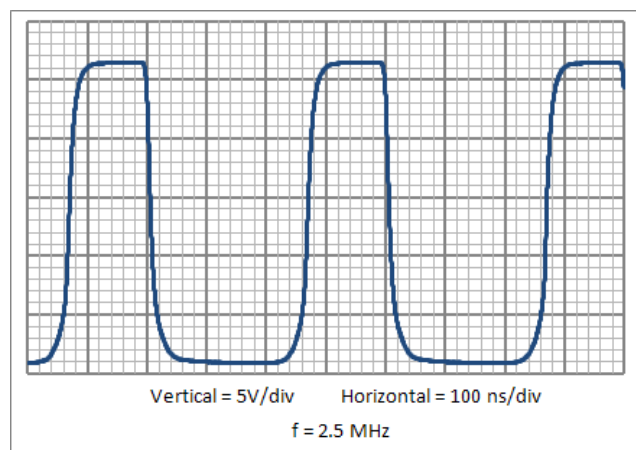
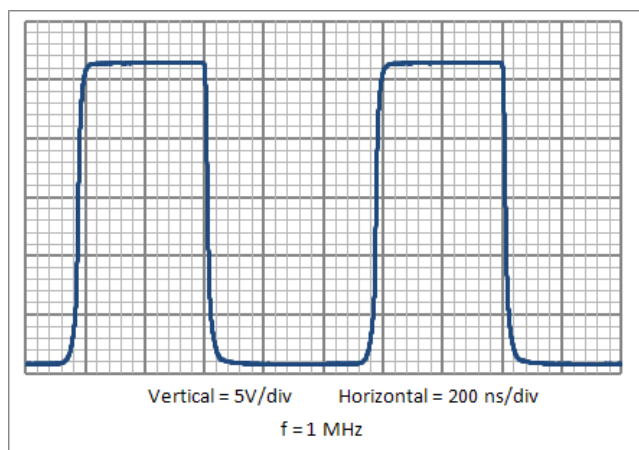
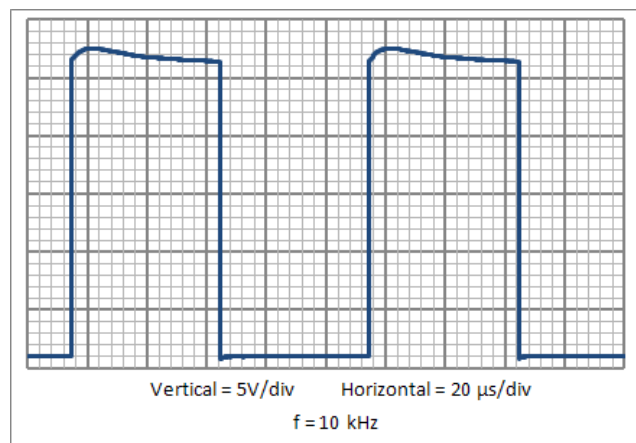
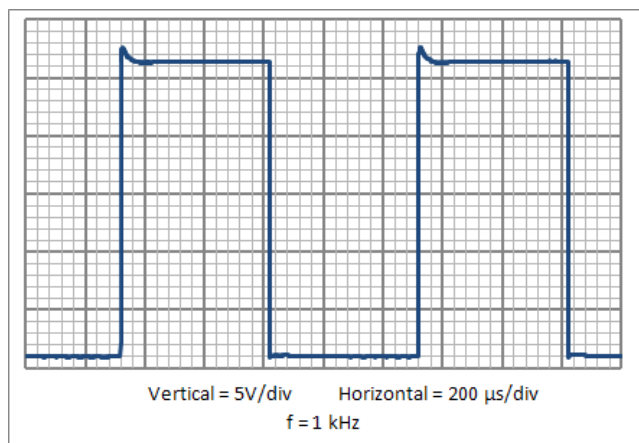
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### Performance

#### Typical Waveforms for Various Frequencies

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



### 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)

