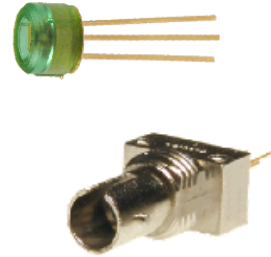


Fiber Optic Receiver

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 50 μ m to 200 μ m 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.

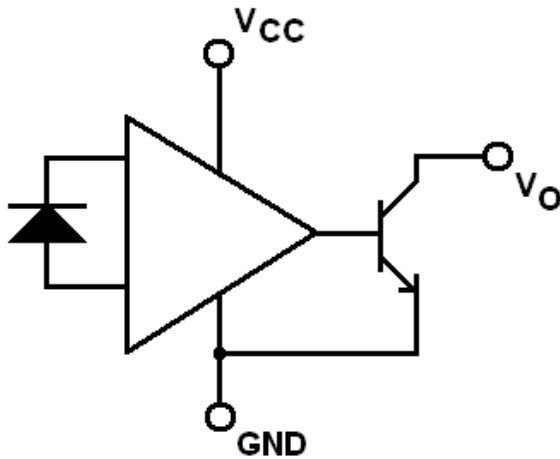
This receiver is designed to operate from a single 5V supply. It is essential that a bypass capacitor be connected from V_{CC} to GND in order to ensure the best possible operation.

Applications:

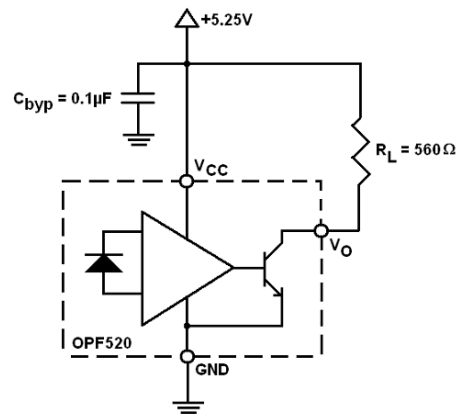
- Industrial Ethernet equipment
- Copper-to-fiber media conversion
- Intra-system fiber optic links
- Video surveillance systems

Part Ordering Information

| Part Number | Description |
|-------------|-----------------------|
| OPF520 | Plastic Cap Component |
| OPF522 | Metal ST Receptacle |



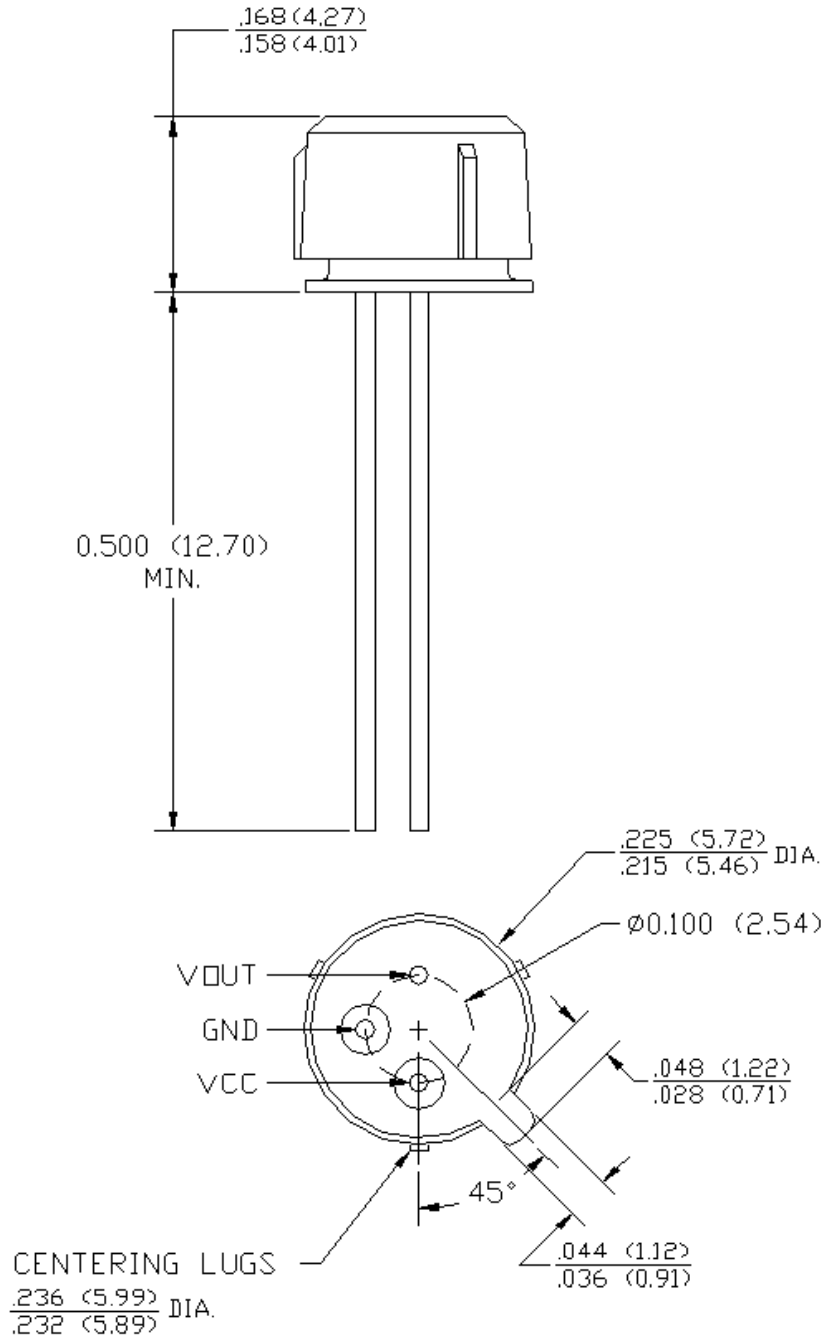
Recommended Test Circuit



General Note

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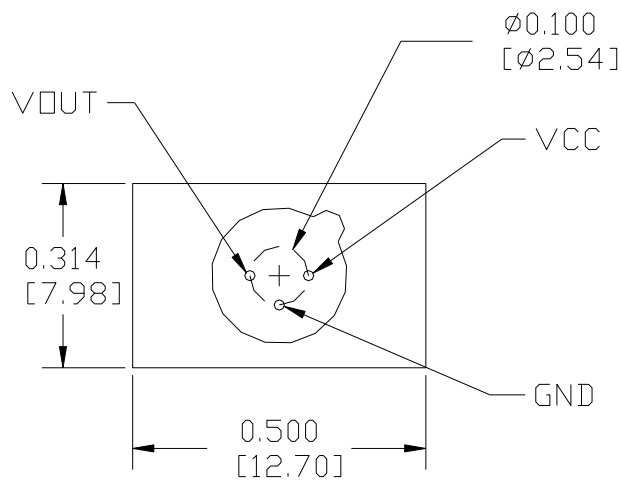
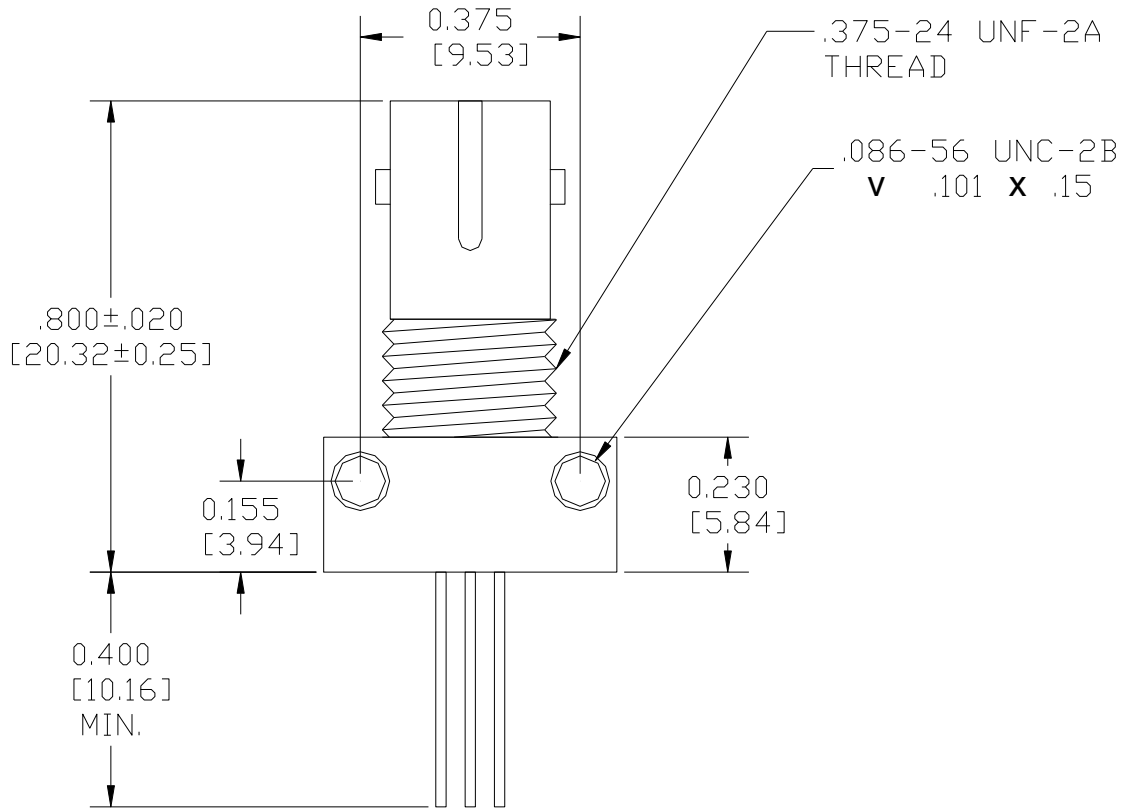
Mechanical Outline—OPF520



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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) | | | | | | |
|---|---------------------------------------|-------|----------|------|---------------|---|
| SYMBOL | 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 | |
| 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:

- 8mA load (5 x 1.6 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.

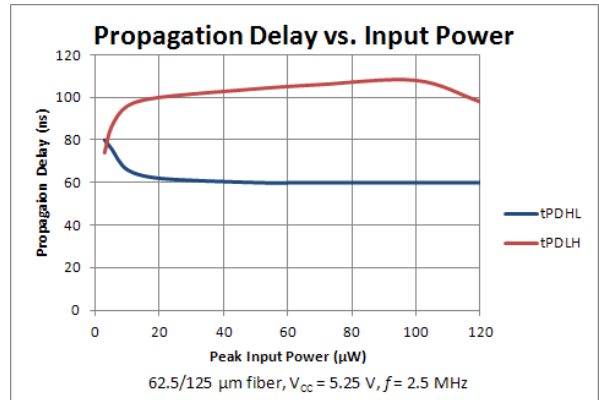
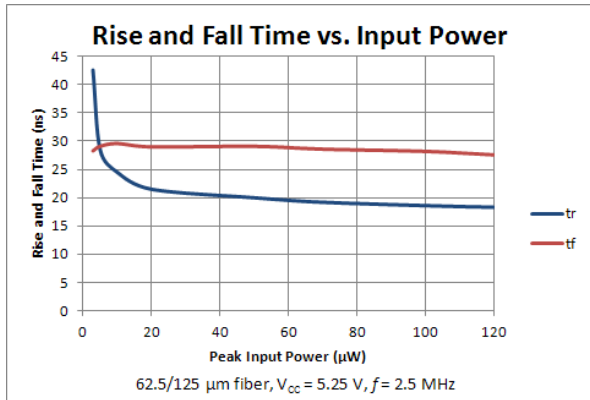
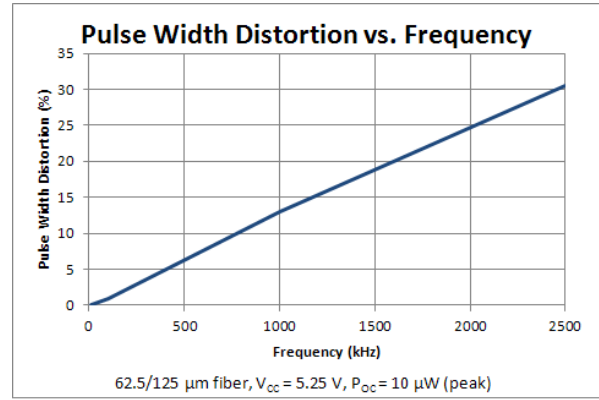
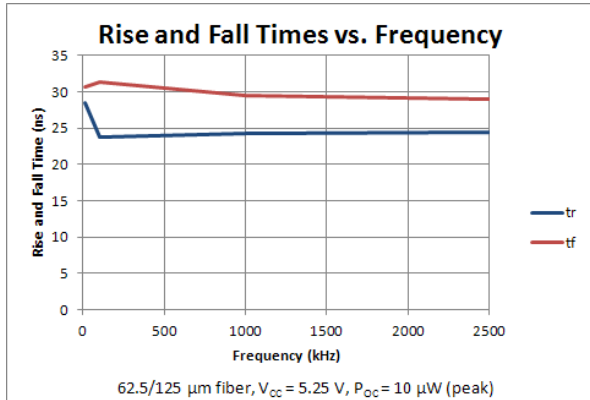
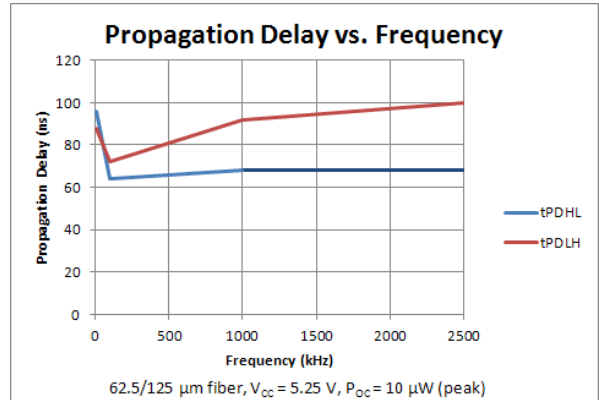
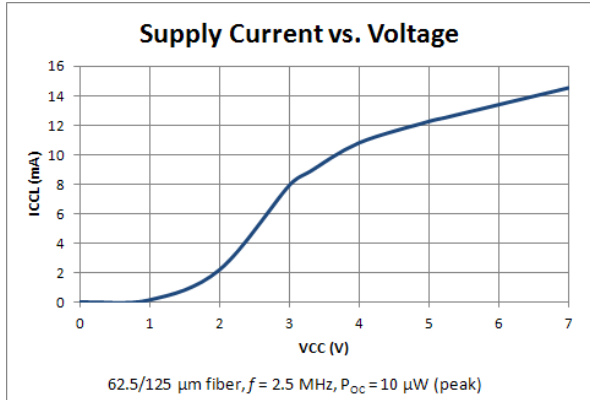
General Note

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Performance

Switching Characteristics

(See Recommended Test Circuit)



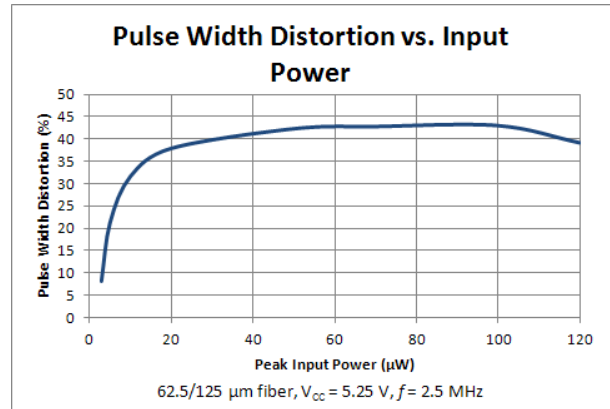
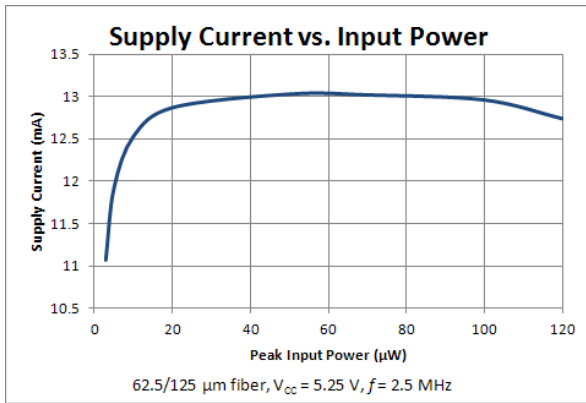
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Performance

Switching Characteristics

(continued)



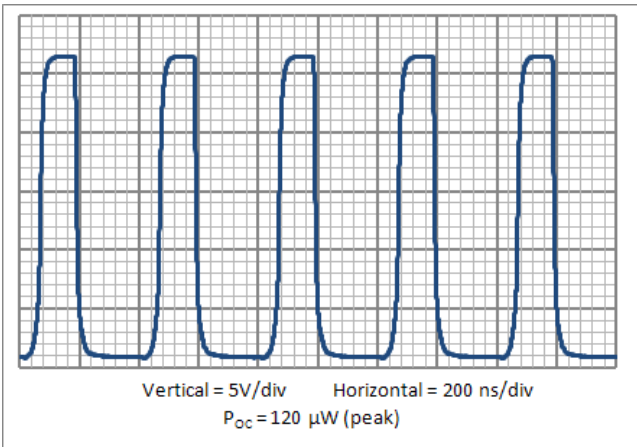
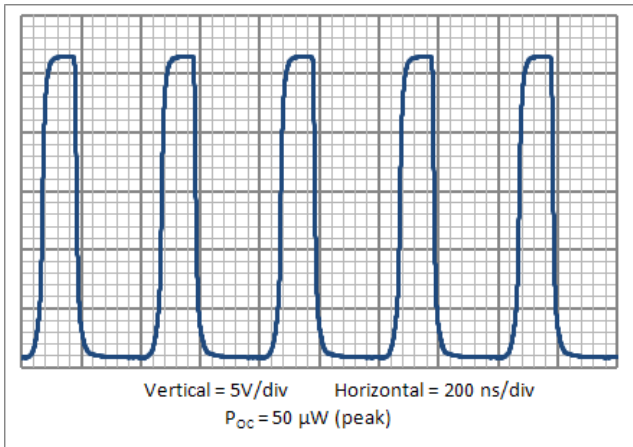
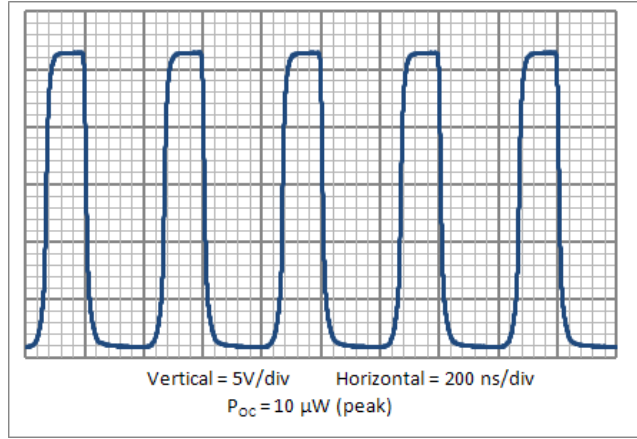
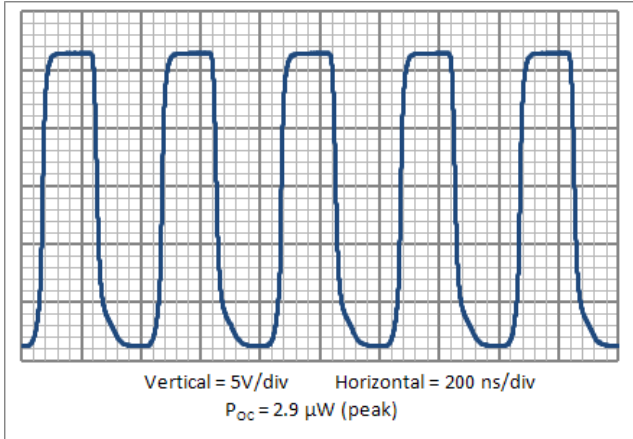
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Performance

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)



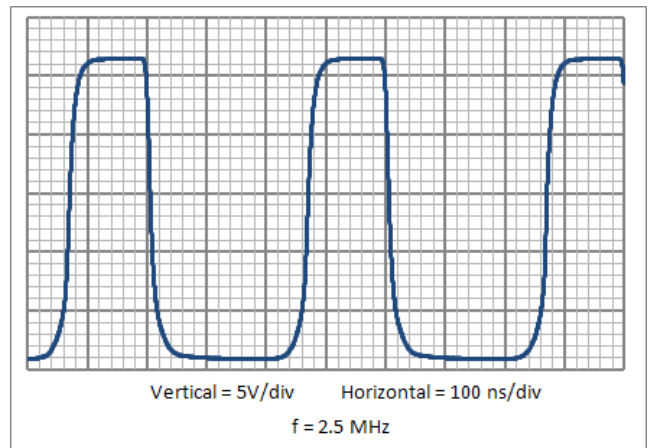
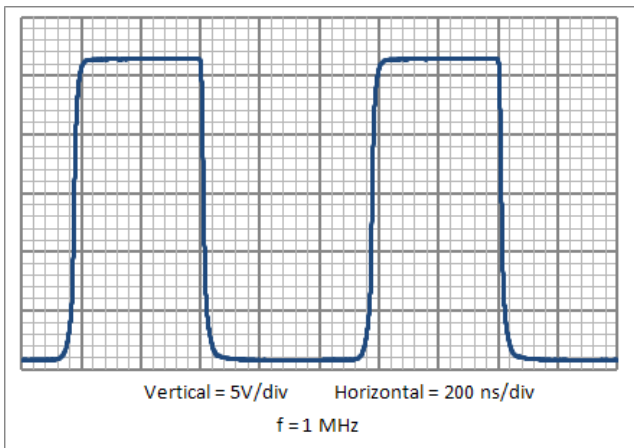
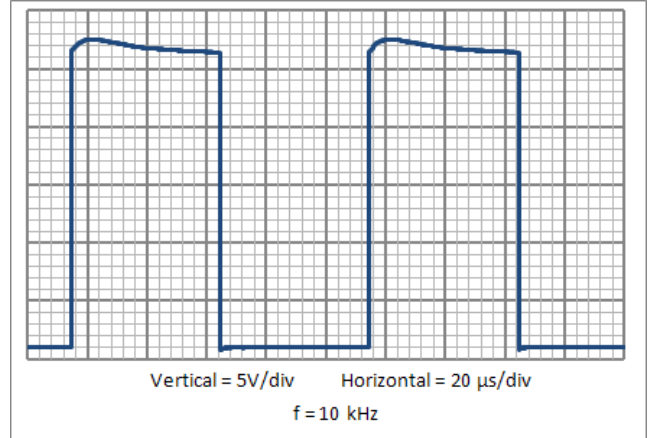
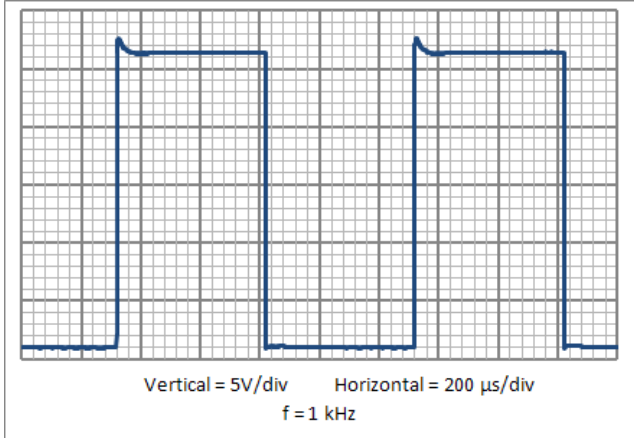
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Performance

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)



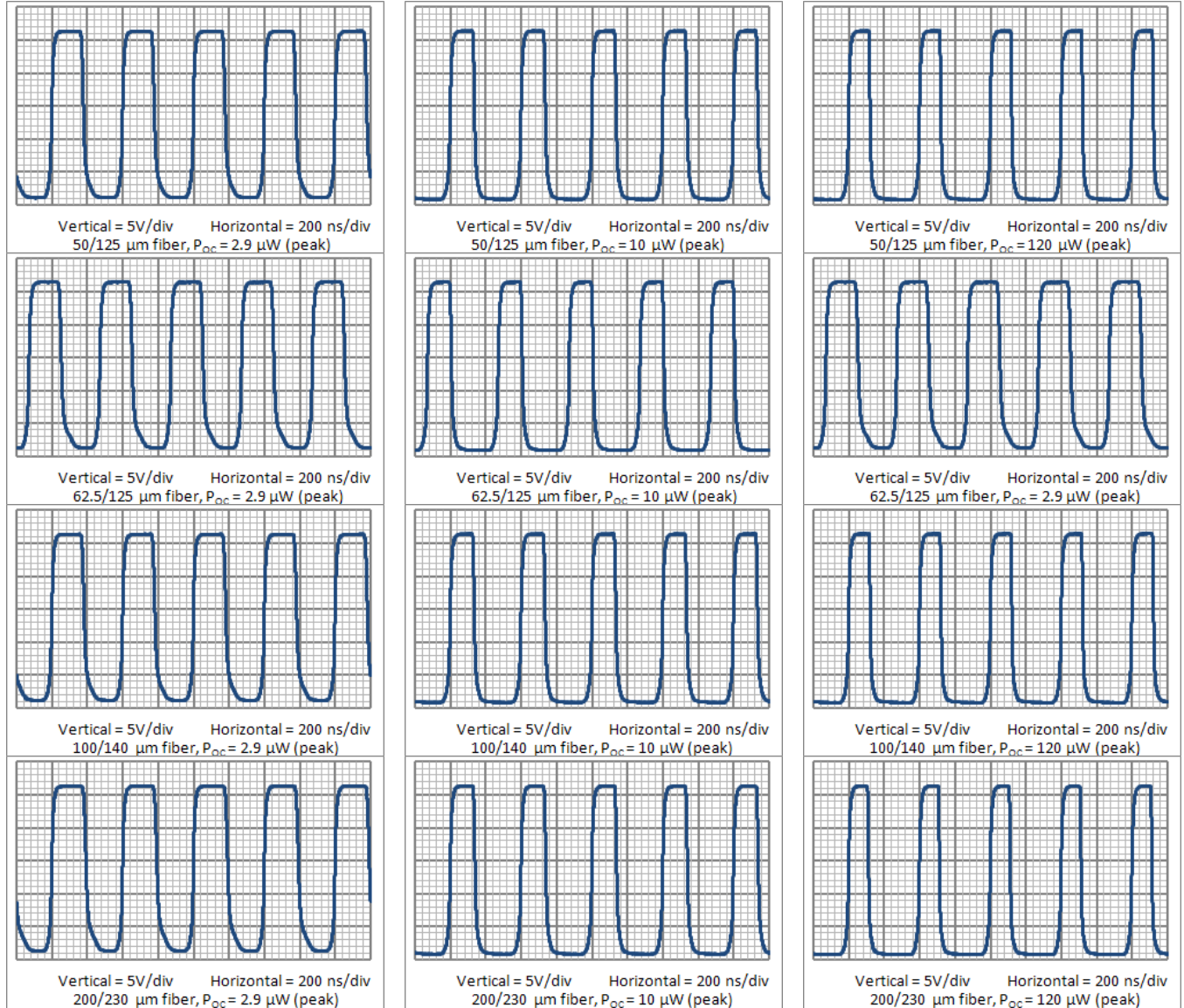
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Performance

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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