

400 MHz Photoreceiver with Si PIN Photodiode



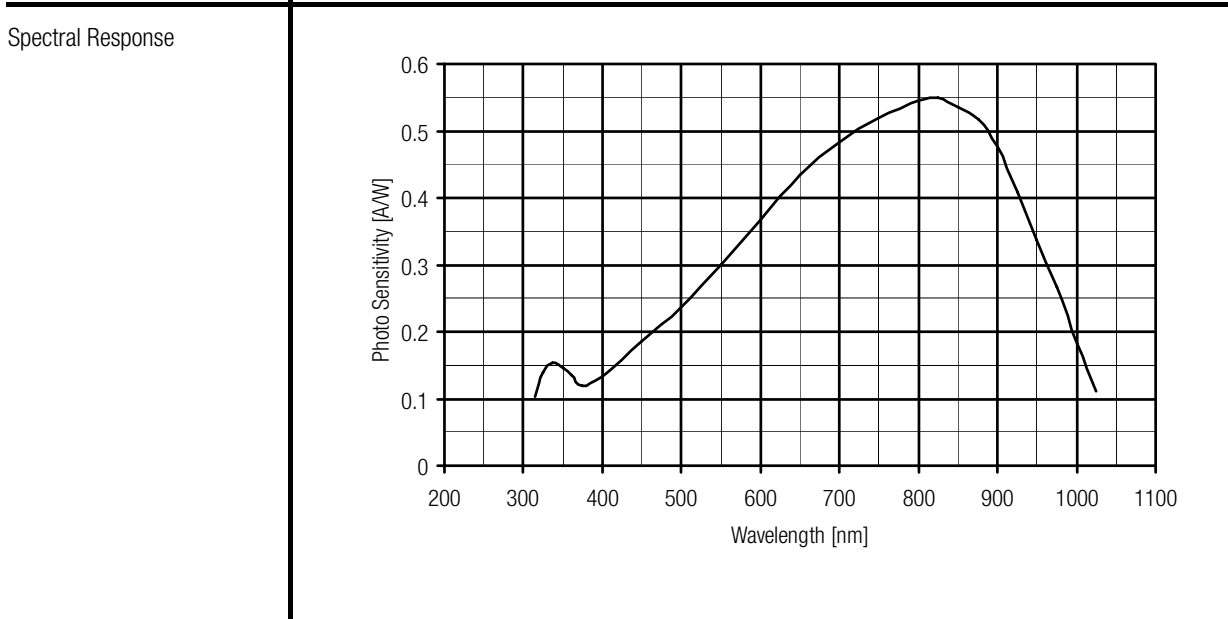
The picture shows the HCA-S-400M-SI-FS.
The photoreceiver will be delivered without post holder and post.

Features	<ul style="list-style-type: none"> • Si PIN Detector, 0.8 mm Active Diameter • Spectral Range 320 ... 1000 nm • Bandwidth DC ... 400 MHz • Amplifier Transimpedance (Gain) 5.0×10^3 V/A • Max. Conversion Gain 2.7×10^3 V/W @ 800 nm 																																
Applications	<ul style="list-style-type: none"> • Fast Pulse and Transient Measurements • Fast Digital Links • Optical Triggering • Optical Front-End for Oscilloscopes and A/D Converters 																																
Specifications	<table border="0"> <tr> <td></td> <td><i>Test Conditions</i></td> <td><i>V_s = ± 15 V, T_a = 25°C</i></td> </tr> <tr> <td rowspan="2">Gain</td> <td>Transimpedance</td> <td>5.0×10^3 V/A (@ 50 Ω load)</td> </tr> <tr> <td>Max. Conversion Gain</td> <td>2.7×10^3 V/W (@ 800 nm)</td> </tr> <tr> <td rowspan="4">Frequency Response</td> <td>Lower Cut-Off Frequency</td> <td>DC</td> </tr> <tr> <td>Upper Cut-Off Frequency (-3 dB)</td> <td>400 MHz (± 10 %)</td> </tr> <tr> <td>Rise/Fall Time (10% - 90%)</td> <td>1.0 ns</td> </tr> <tr> <td>Gain Flatness</td> <td>± 1 dB</td> </tr> <tr> <td rowspan="3">Detector</td> <td>Detector Material</td> <td>Si PIN photodiode</td> </tr> <tr> <td>Active Area</td> <td>Ø 0.8 mm</td> </tr> <tr> <td>Spectral Response</td> <td>320 ... 1000 nm</td> </tr> <tr> <td rowspan="3">Input</td> <td>Input Offset Compensation</td> <td>± 200 µA adjustable by offset trimpot</td> </tr> <tr> <td>Max. Optical Input Power</td> <td>400 µW (for linear amplification, @ 800 nm)</td> </tr> <tr> <td>Min. NEP</td> <td>40 pW/√Hz (@ 800 nm, 100 MHz)</td> </tr> </table>			<i>Test Conditions</i>	<i>V_s = ± 15 V, T_a = 25°C</i>	Gain	Transimpedance	5.0×10^3 V/A (@ 50 Ω load)	Max. Conversion Gain	2.7×10^3 V/W (@ 800 nm)	Frequency Response	Lower Cut-Off Frequency	DC	Upper Cut-Off Frequency (-3 dB)	400 MHz (± 10 %)	Rise/Fall Time (10% - 90%)	1.0 ns	Gain Flatness	± 1 dB	Detector	Detector Material	Si PIN photodiode	Active Area	Ø 0.8 mm	Spectral Response	320 ... 1000 nm	Input	Input Offset Compensation	± 200 µA adjustable by offset trimpot	Max. Optical Input Power	400 µW (for linear amplification, @ 800 nm)	Min. NEP	40 pW/√Hz (@ 800 nm, 100 MHz)
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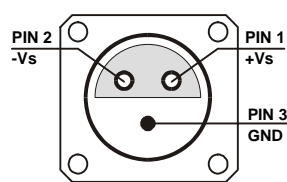
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Output	Output Voltage Range $\pm 1.0\text{ V}$ (@ 50 Ω load) for linear operation and low harmonic distortion Max. Output Voltage Range $\pm 1.5\text{ V}$ (@ 50 Ω load) Output Impedance 50 Ω (terminate with 50 Ω load for best performance) Output Noise ca. 20 mV peak-peak (@ 50 Ω load, no signal on detector)
Power Supply	Supply Voltage $\pm 15\text{ V}$ Supply Current $\pm 55\text{ mA typ.}$ (depends on operating conditions, recommended power supply capability minimum $\pm 150\text{ mA}$)
Case	Weight 210 g (0.5 lbs) Material AlMg4.5Mn, nickel-plated
Temperature Range	Storage Temperature -40 ... +100 °C Operating Temperature 0 ... +60 °C

Absolute Maximum Ratings	Optical Input Power 20 mW Power Supply Voltage $\pm 22\text{ V}$
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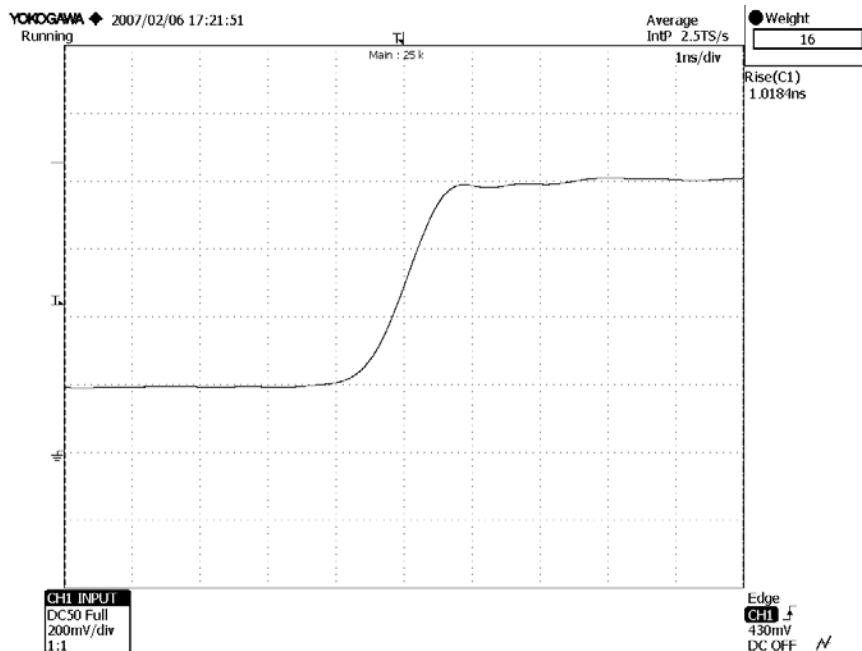
Connectors	Input optical, free space, 25 mm \varnothing round flange, alternatively FC or SMA fiber receptacle Output BNC Power Supply LEMO series 1S, 3-pin fixed socket Pin 1: + 15V Pin 2: - 15V Pin 3: GND
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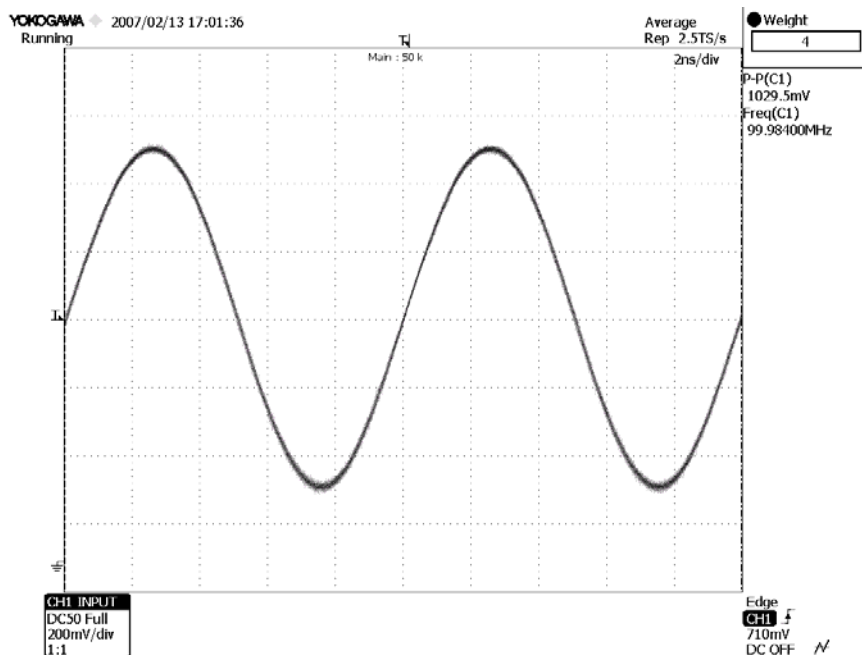
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Typical Performance Characteristics (continued)

Pulse Response to Square Wave Input Signal (with 16 times averaging)



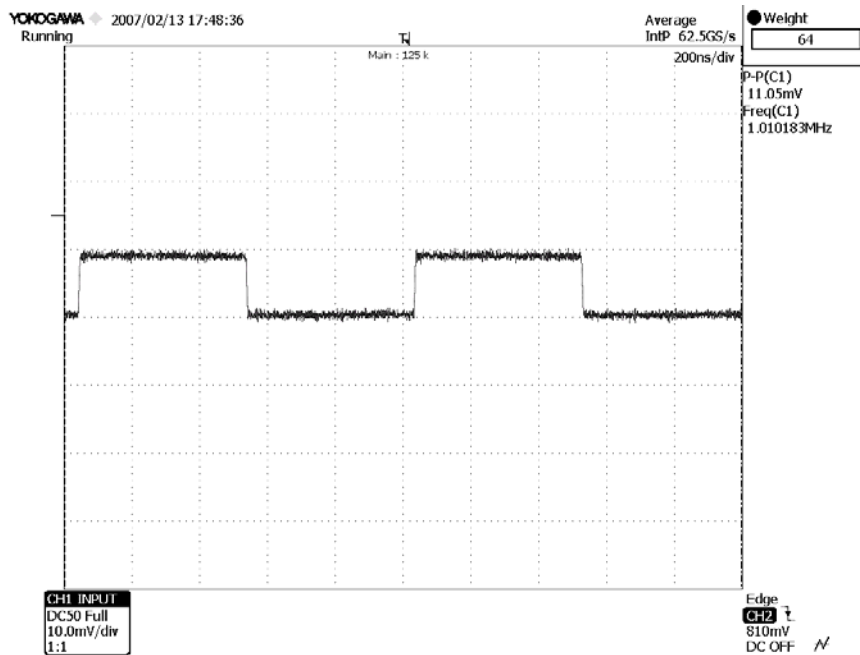
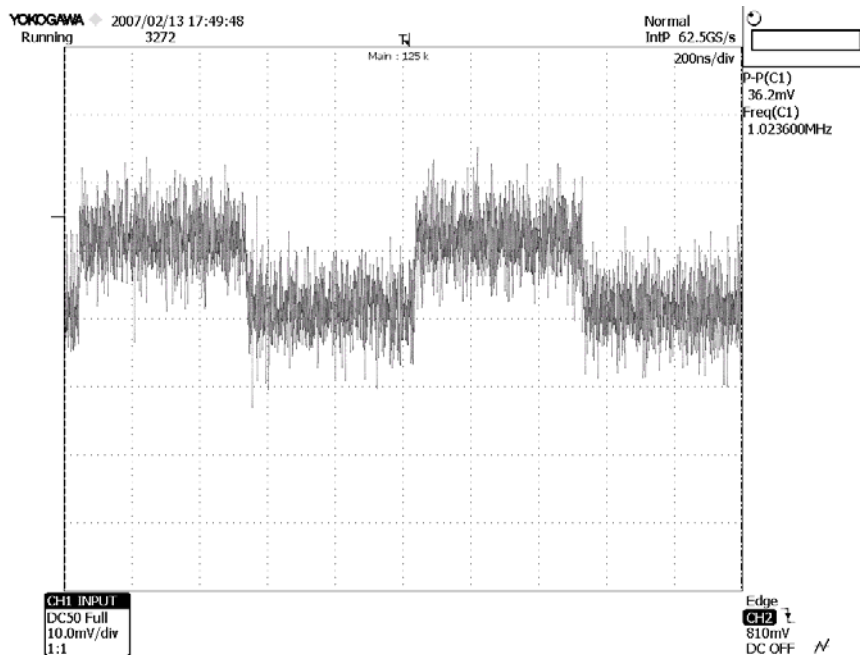
Large Signal Response
output signal for 100 MHz, 370 μ W modulated optical input signal (with 4 times averaging)



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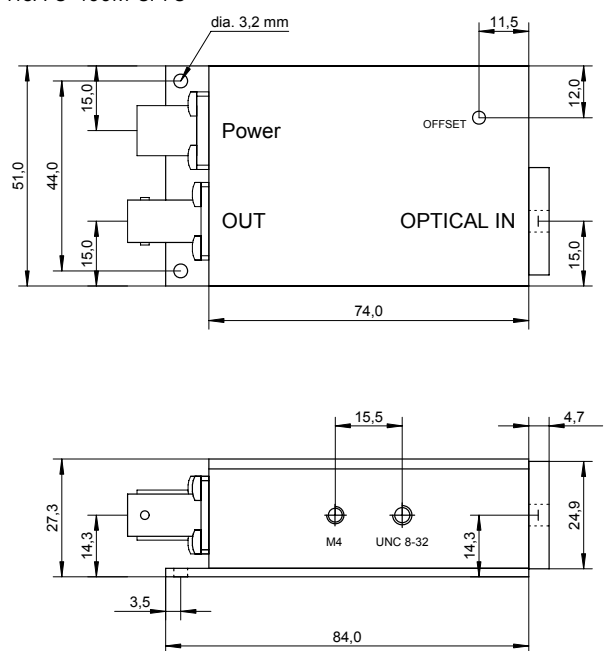
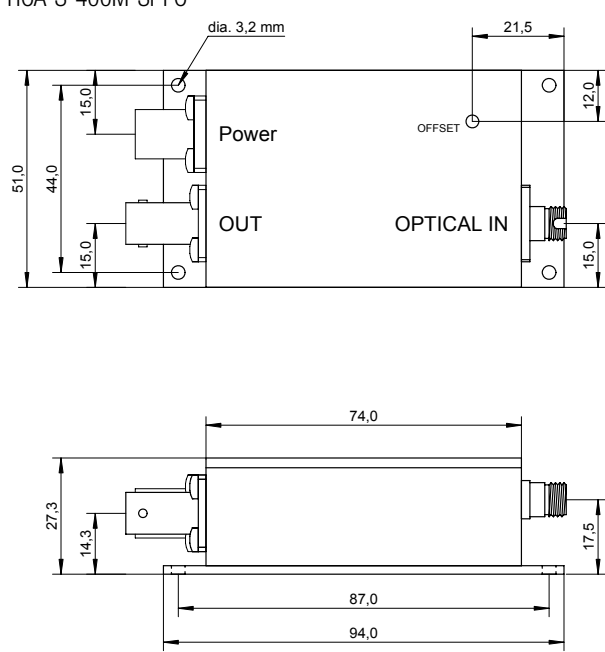
Typical Performance Characteristics (continued)

Small Signal Response
output signal for 3.7 μ W modulated optical input signal, 1 MHz square wave (without (top) and with 64 times averaging (bottom))

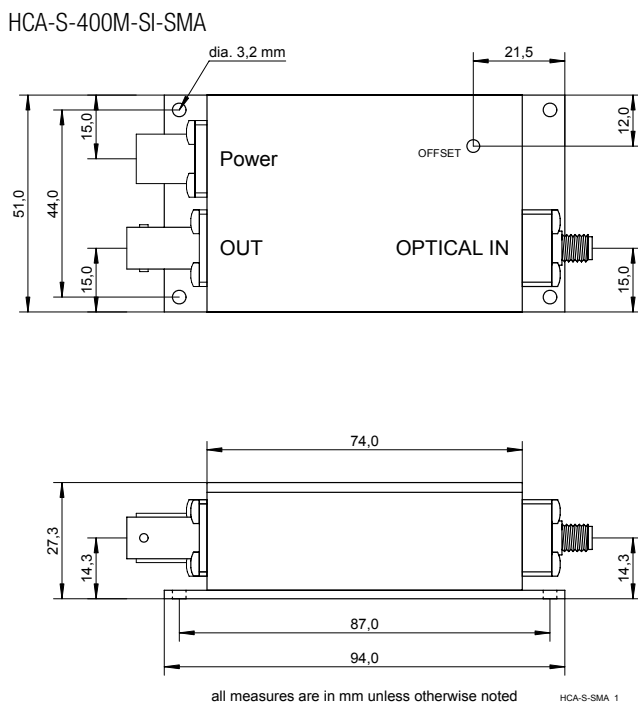


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Available Models	HCA-S-400M-SI-FS HCA-S-400M-SI-FC HCA-S-400M-SI-SMA	Free-space input FC fiber receptacle input SMA fiber receptacle input
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Dimensions	<p>HCA-S-400M-SI-FS</p>  <p>all measures are in mm unless otherwise noted <small>HCA-S-FS_1</small></p> <p>HCA-S-400M-SI-FC</p>  <p>all measures are in mm unless otherwise noted <small>HCA-S-FC_1</small></p>	
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