

Datasheet

HCA-S-400M-IN

400 MHz Photoreceiver
with InGaAs PIN Photodiode



The picture shows the HCA-S-400M-IN-FS with free space input.
The photoreceiver will be delivered without post holder and post.

Features	<ul style="list-style-type: none"> • InGaAs PIN detector • Spectral range 900 ... 1700 nm • Bandwidth DC ... 400 MHz • Amplifier transimpedance (gain) 5.0×10^3 V/A • Max. conversion gain 4.8×10^3 V/W @ 1550 nm 																																
Applications	<ul style="list-style-type: none"> • Spectroscopy • Fast pulse and transient measurements • Optical triggering • Optical front-end for oscilloscopes and A/D converters 																																
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SOPHISTICATED TOOLS FOR SIGNAL RECOVERY



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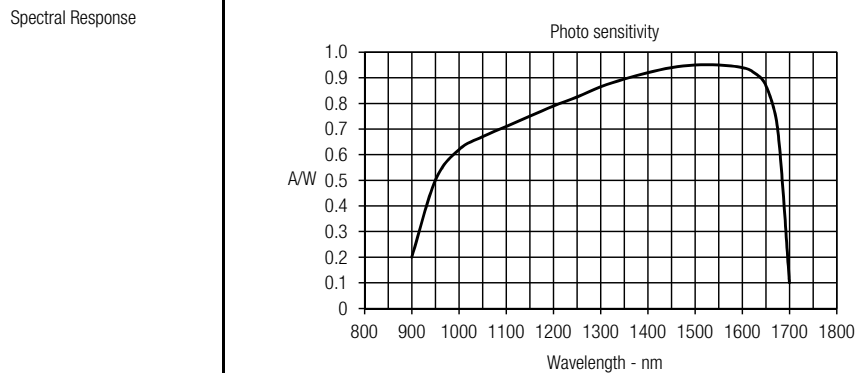
Datasheet

HCA-S-400M-IN

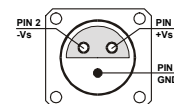
**400 MHz Photoreceiver
with InGaAs PIN Photodiode**

Specifications (continued)		
Output	Output voltage range	±1.0 V (@ 50 Ω load) for linear amplification and low harmonic distortion
	Max. output voltage range	±1.5 V (@ 50 Ω load)
	Output impedance	50 Ω (designed for 50 Ω load)
	Output noise	typ. 20 mV _{pp} or 3 mV _{RMS} (@ 50 Ω load, no signal on detector)
Power Supply	Supply voltage	±15 V
	Supply current	±55 mA typ. (depends on operating conditions, recommended power supply capability min. ±150 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	10 mW
	Power supply voltage	±22 V



Connectors	Input	HCA-S-400M-IN-FS	25 mm round flange for free space applications
		HCA-S-400M-IN-FC	FC fiber optic receptacle
	Output	BNC jack (female)	
	Power supply	Lemo® series 1S, 3-pin fixed socket (Mating plug type: FFA.1S.303.CLAC52) Pin 1: +15V Pin 2: -15V Pin 3: GND	



SOPHISTICATED TOOLS FOR SIGNAL RECOVERY



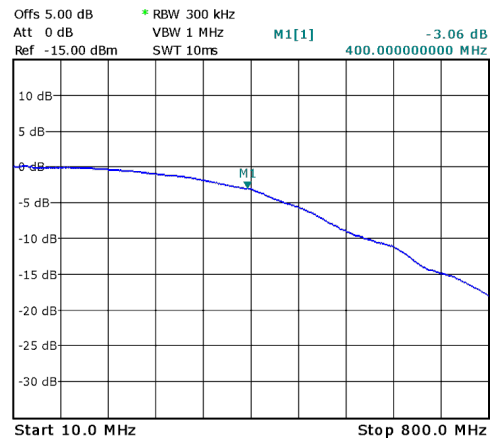
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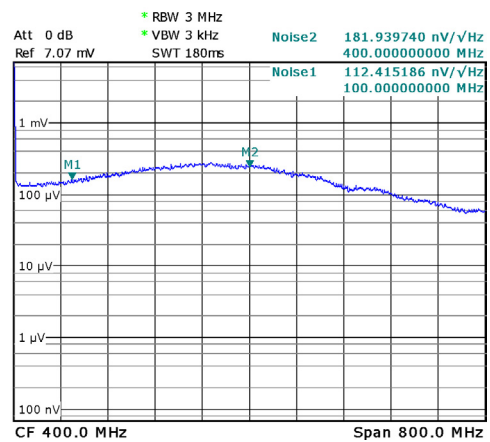
400 MHz Photoreceiver
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Typical Performance
Characteristics

Frequency response



Noise spectrum



Note: Spectral noise data is measured at the amplifier output with no signal on the photodiode. To determine the spectral input noise divide the measured output noise by the amplifier conversion gain.

Conversion gain (V/W) = amplifier gain (5,000 V/A) x photo sensitivity (A/W).

Marker	Frequency	Output noise	Resulting input noise (NEP)
1	100 MHz	112 nV/√Hz	24 pW/√Hz (@ 1550 nm)
2	400 MHz	182 nV/√Hz	38 pW/√Hz (@ 1550 nm)

SOPHISTICATED TOOLS FOR SIGNAL RECOVERY



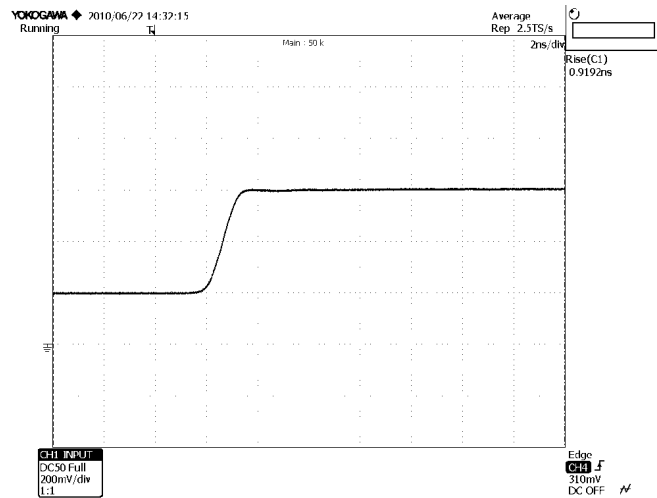
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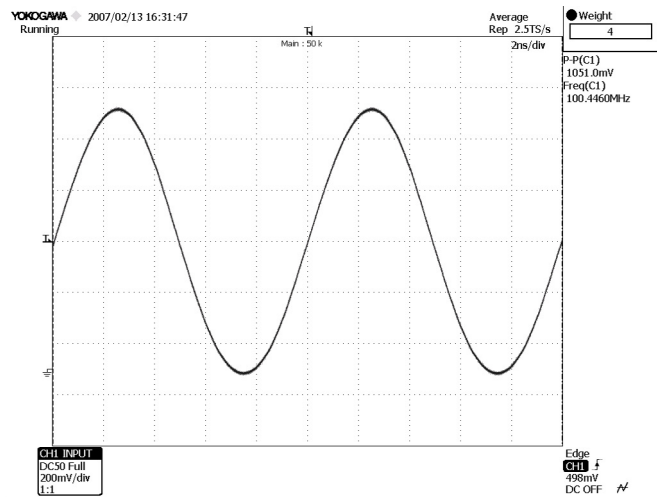
**400 MHz Photoreceiver
with InGaAs PIN Photodiode**

Typical Performance
Characteristics
(continued)

Pulse response to square wave input signal
(with 16 times averaging)



Large signal response
output signal for 100 MHz, 210 μ W modulated optical input signal
(with 4 times averaging)



SOPHISTICATED TOOLS FOR SIGNAL RECOVERY



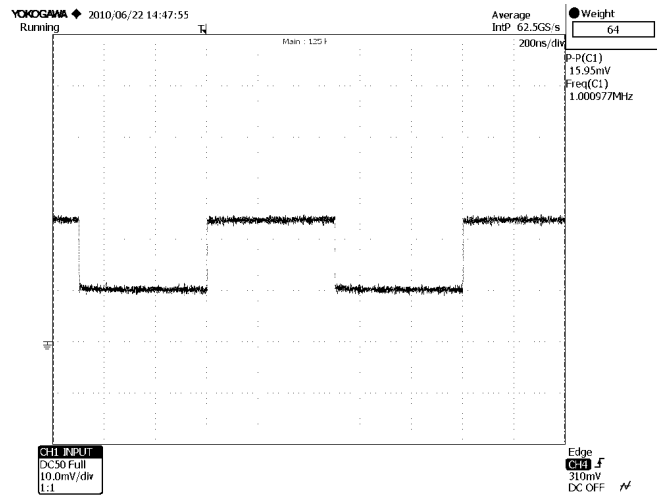
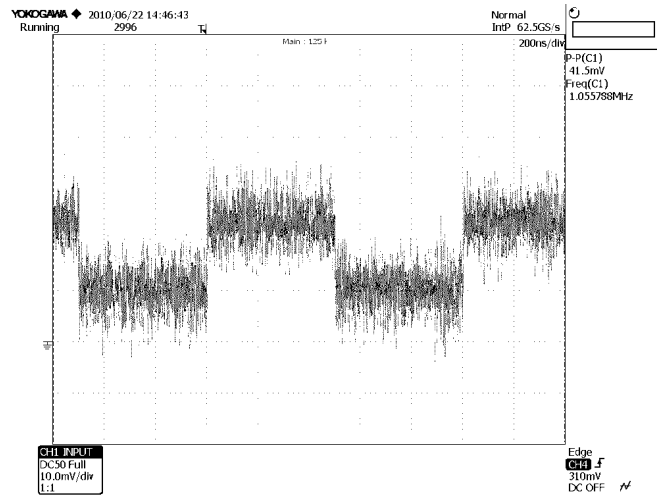
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HCA-S-400M-IN

400 MHz Photoreceiver
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Typical Performance
Characteristics
(continued)

Small signal response
output signal for 3 μ W modulated optical input signal, 1 MHz square wave
(without (top) and with 64 times averaging (bottom))



Available Models

HCA-S-400M-IN-FS free space input
HCA-S-400M-IN-FC FC fiber optic receptacle
HCA-S customized versions available on request

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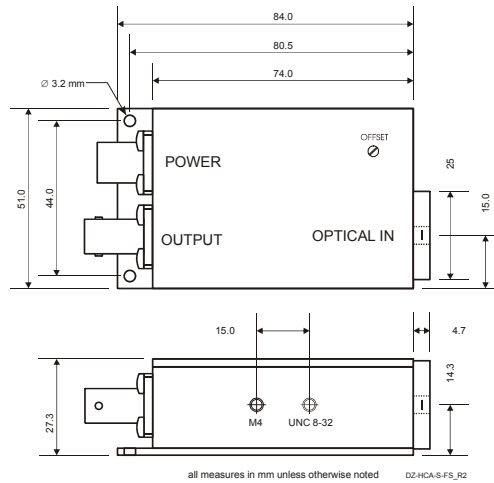
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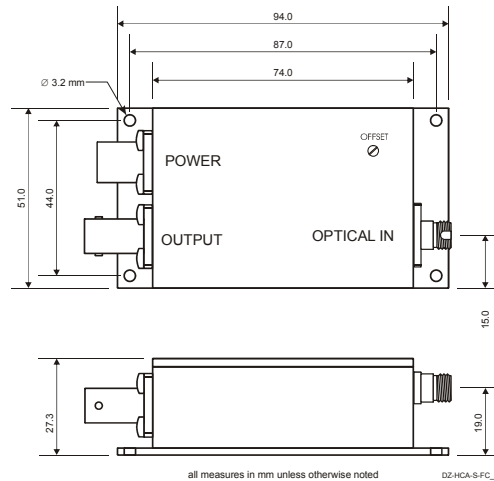
**400 MHz Photoreceiver
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Dimensions

HCA-S-400M-IN-FS



HCA-S-400M-IN-FC



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