

1.25Gbps / 2.50Gbps Hybrids

GaAs Photodetectors / Transimpedance Amplifiers

LASER
COMPONENTS



APPLICATIONS

- High Speed Optical Communications
- Gigabit Ethernet
- Fibre Channel
- ATM
- SONET OC-48 / SDH STM-16

FEATURES

- GaAs Photodetector / low Noise Transimpedance Amplifier
- High Bandwidth / Wide Dynamic Range
- Hermetically Sealed TO-46 Can
- Single +3.3V to +5V Power Supply
- Spectral Range 650nm to 850nm
- Differential Output

DESCRIPTION

FCI-H125/250G-GaAs-100 series with active area sizes of 100 μ m is a compact integration of our high speed GaAs photodetector with a wide dynamic range transimpedance amplifier. Combining the detector with the TIA in a hermetically sealed 4 pin TO-46 or TO-52 package provides ideal conditions for high speed signal amplification. Low capacitance, low dark current and high responsivity from 650nm to 860nm make these devices ideal for high-bit rate receivers used in LAN, MAN, and other high speed communication systems. TO packages come standard with a lensed cap to enhance coupling efficiency, or with a broadband double sided AR coated flat window. The FCI-H125/250G-GaAs-100 series is also offered with FC, SC, ST and SMA receptacles.

Absolute Maximum Ratings

PARAMETERS	SYMBOL	MIN	MAX	UNITS
Storage Temperature	T _{stg}	-40	+125	°C
Operating Temperature	T _{op}	0	+75	°C
Supply Voltage	V _{cc}	0	+6	V
Input Optical Power	P _{IN}	---	+5	dBm

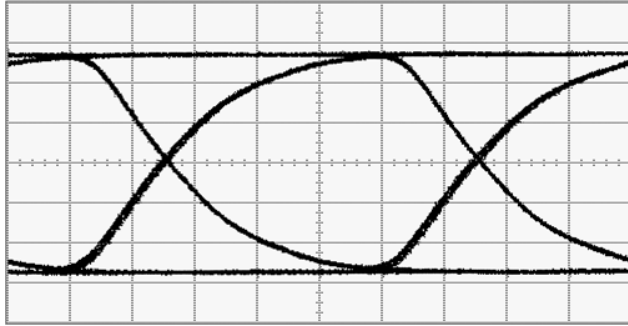
Electro-Optical Characteristics

T_A=23°C, V_{cc}=+3.3V, 850nm, 100 Ω Differential AC Load

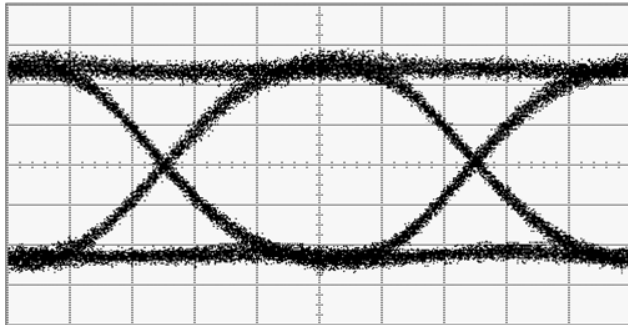
PARAMETERS	SYMBOL	CONDITIONS	FCI-H125G-GaAs-100			FCI-H250G-GaAs-100			UNITS
			MIN	TYP	MAX	MIN	TYP	MAX	
Supply Voltage	V _{cc}	---	+3	---	+5.5	+3	---	+5.5	V
Supply Current	I _{cc}	*T _A = 0 to 70°C	---	26	*55	---	35	*65	mA
Active Area Diameter	AA	---	---	100	---	---	100	---	μ m
Operating Wavelength		---	650	---	860	650	---	860	nm
Responsivity	R	-17dBm, Differential	1000	1700	---	1000	1650	---	V/W
Transimpedance	---	-17dBm, Differential	---	2800	---	---	2800	---	
Sensitivity	S	BER 10 ⁻¹⁰ , PRBS2 ⁷ -1	-22	-26	---	-19	-22	---	dBm
Optical Overload	---	---	0	---	---	0	---	---	dBm
Bandwidth	BW	-3dB, Small Signal	---	900	---	---	1700	---	MHz
Low Frequency Cutoff	---	-3dB	---	45	---	---	30	---	kHz
Differential Output Voltage	V _{OUT, p-p}	-3dBm	180	250	420	200	400	600	mV _{p-p}
Output Impedance	---	---	47	50	53	47	50	53	
Transimpedance Linear Range	---	<5%	50	---	---	65	---	---	μ W _{p-p}

Use AC coupling and differential 100 Ω load for the best high-speed performance. Devices are not intended to drive DC coupled, 50 Ω grounded load.

FCI-H125G-GaAs-100

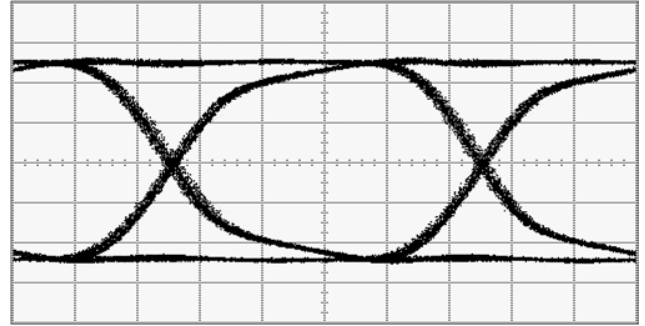


50mV / div, 160ps / div, -6dBm, 850nm, PRBS²⁷-1, Diff.

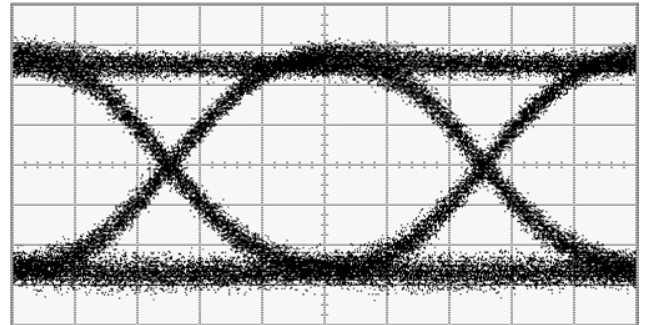


10mV / div, 160ps / div, -17dBm, 850nm, PRBS²⁷-1, Diff.

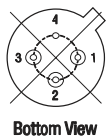
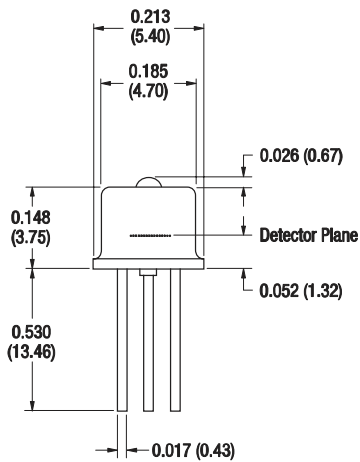
FCI-H250G-GaAs-100



80mV / div, 80ps / div, -6dBm, 850nm, PRBS²⁷-1, Diff.



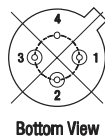
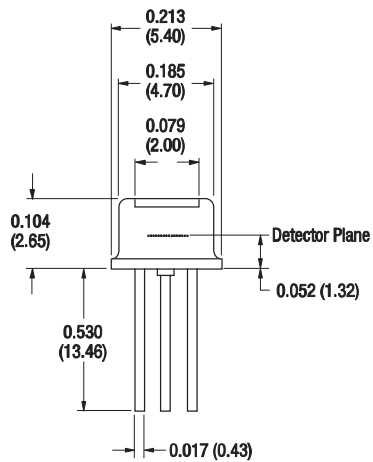
10mV / div, 80ps / div, -17dBm, 850nm, PRBS²⁷-1, Diff.



PINOUT

- | | |
|---|------------------|
| 1 | D _{out} |
| 2 | V _{CC} |
| 3 | D _{out} |
| 4 | GND |

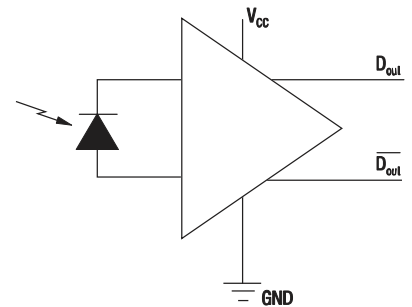
Pin Circle Diameter = 0.100 (2.54)



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- | | |
|---|------------------|
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| 3 | D _{out} |
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Pin Circle Diameter = 0.100 (2.54)



Notes:

- ① All units in inches (mm).
- ② All tolerances: 0.005 (0.125).
- ③ Please specify when ordering the flat window or lens cap devices.
- ④ The flat window devices have a double sided AR coated window at 850nm.
- ⑤ The thickness of the flat window=0.008 (0.21).