

# 1.25Gbps / 2.50Gbps Hybrids

## GaAs Photodetectors / Transimpedance Amplifiers

**FCI-H125/250G-GaAs-100** series with active area sizes of 100µm 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.



### 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

### Absolute Maximum Ratings

| PARAMETERS            | SYMBOL           | MIN | MAX  | UNITS |
|-----------------------|------------------|-----|------|-------|
| Storage Temperature   | T <sub>stg</sub> | -40 | +125 | °C    |
| Operating Temperature | T <sub>op</sub>  | 0   | +75  | °C    |
| Supply Voltage        | V <sub>cc</sub>  | 0   | +6   | V     |
| Input Optical Power   | P <sub>IN</sub>  | --- | +5   | dBm   |

### Electro-Optical Characteristics

T<sub>A</sub>=23°C, V<sub>cc</sub>=+3.3V, 850nm, 100Ω Differential AC Load

| PARAMETERS                  | SYMBOL                | CONDITIONS                       | FCI-H125G-GaAs-100 |      |      | FCI-H250G-GaAs-100 |      |      | UNITS             |
|-----------------------------|-----------------------|----------------------------------|--------------------|------|------|--------------------|------|------|-------------------|
|                             |                       |                                  | MIN                | TYP  | MAX  | MIN                | TYP  | MAX  |                   |
| Supply Voltage              | V <sub>CC</sub>       | ---                              | +3                 | ---  | +5.5 | +3                 | ---  | +5.5 | V                 |
| Supply Current              | I <sub>CC</sub>       | *T <sub>A</sub> = 0 to 70°C      | ---                | 26   | *55  | ---                | 35   | *65  | mA                |
| Active Area Diameter        | AA <sub>φ</sub>       | ---                              | ---                | 100  | ---  | ---                | 100  | ---  | µm                |
| Operating Wavelength        | λ                     | ---                              | 650                | ---  | 860  | 650                | ---  | 860  | nm                |
| Responsivity                | R <sub>λ</sub>        | -17dBm, Differential             | 1000               | 1700 | ---  | 1000               | 1650 | ---  | V/W               |
| Transimpedance              | ---                   | -17dBm, Differential             | ---                | 2800 | ---  | ---                | 2800 | ---  | Ω                 |
| Sensitivity                 | S                     | BER 10 <sup>-10</sup> , PRBS27-1 | -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 <sub>OUT, P-P</sub> | -3dBm                            | 180                | 250  | 420  | 200                | 400  | 600  | mV <sub>p-p</sub> |
| Output Impedance            | ---                   | ---                              | 47                 | 50   | 53   | 47                 | 50   | 53   | Ω                 |
| Transimpedance Linear Range | ---                   | <5%                              | 50                 | ---  | ---  | 65                 | ---  | ---  | µW <sub>p-p</sub> |

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

Distributor



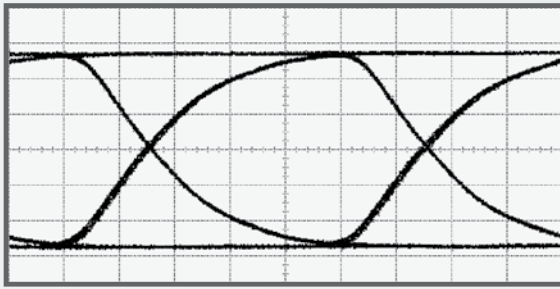
info@amstechnologies.com  
www.amstechnologies-webshop.com

Contact us 

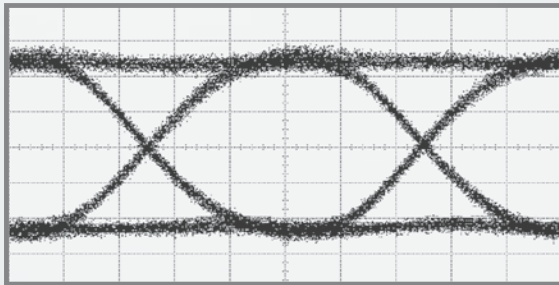
# 1.25Gbps / 2.50Gbps Hybrids

GaAs Photodetectors / Transimpedance Amplifiers

### FCI-H125G-GaAs-100

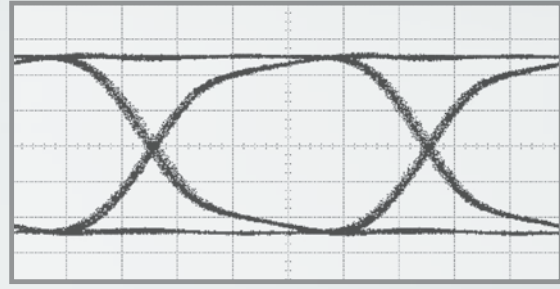


50mV / div, 160ps / div, -6dBm, 850nm, PRBS2<sup>7</sup>-1, Diff.

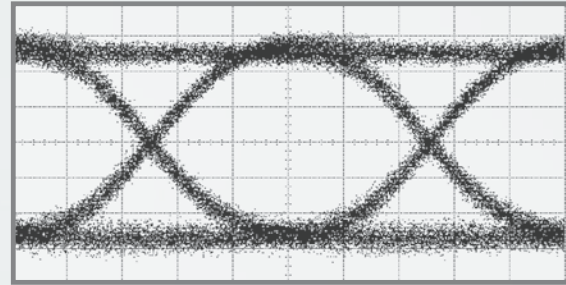


10mV / div, 160ps / div, -17dBm, 850nm, PRBS2<sup>7</sup>-1, Diff.

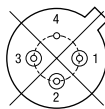
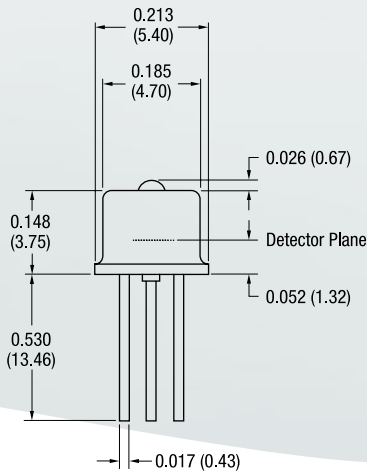
### FCI-H250G-GaAs-100



80mV / div, 80ps / div, -6dBm, 850nm, PRBS2<sup>7</sup>-1, Diff.



10mV / div, 80ps / div, -17dBm, 850nm, PRBS2<sup>7</sup>-1, Diff.

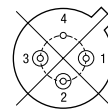
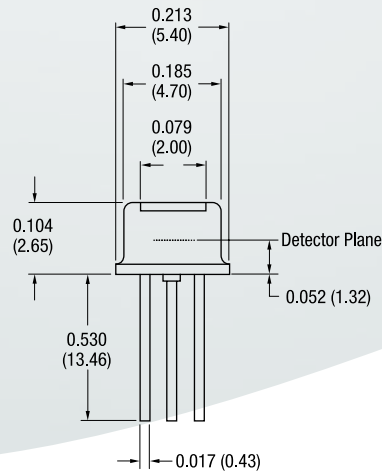


Bottom View

#### PINOUT

|   |                  |
|---|------------------|
| 1 | D <sub>out</sub> |
| 2 | V <sub>CC</sub>  |
| 3 | D <sub>out</sub> |
| 4 | GND              |

Pin Circle Diameter = 0.100 (2.54)

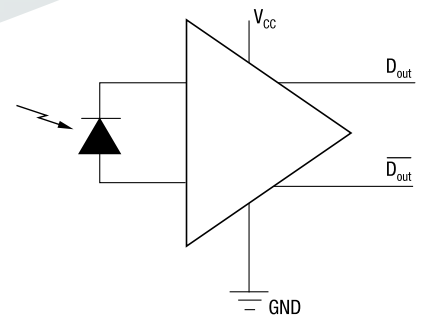


Bottom View

#### PINOUT

|   |                  |
|---|------------------|
| 1 | D <sub>out</sub> |
| 2 | V <sub>CC</sub>  |
| 3 | D <sub>out</sub> |
| 4 | GND              |

Pin Circle Diameter = 0.100 (2.54)



#### Notes:

- All units in inches (mm).
- All tolerances: 0.005 (0.125).
- Please specify when ordering the flat window or lens cap devices.
- The flat window devices have a double sided AR coated window at 850nm.