622 Mbps Hybrids

InGaAs Photodetectors / Transimpedance Amplifiers

FCI-H622M-InGaAs-75 series are high-speed 75µm InGaAs photodetector integrated with wide dynamic range transimpedance amplifier. Combining the detector with the TIA in a hermetically sealed 4 pin TO-46 package provides ideal conditions for high-speed signal detection and amplification. Low capacitance, low dark current and high responsivity of the detector, along with low noise characteristic of the integrated TIA, give rise to excellent sensitivity. In practice, these devices are ideal for datacom and telecom applications. Cost effective TO-46 packages come standard with a lensed cap for design simplification, or with a broadband double-sided AR coated flat window. The FCI-H622M-InGaAs-75 series are also offered with FC, SC, ST and SMA receptacles.

APPLICATIONS

- High Speed Optical Communications
- ATM
- SONET OC-3 / OC-12
- SDH STM-1 / STM-4
- Optical Receivers

FEATURES

- Low Noise Transimpedance Amplifier
- High Bandwidth / Wide Dynamic Range
- Single +3.3V Power Supply
- Spectral Range 1100nm to 1650nm
- Differential Output

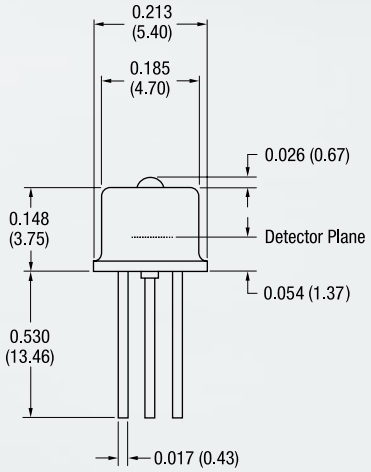
Absolute Maximum Ratings

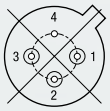
PARAMETERS	SYMBOL	MIN	MAX	UNITS
Storage Temperature	T_{stg}	-40	+125	°C
Operating Temperature	T_{op}	-40	+85	°C
Supply Voltage	V_{cc}	0	+5.5	V
Input Optical Power	P_{IN}	---	+3	dBm

Electro-Optical Characteristics — T=23°C, Vcc=+3.3V, 1310nm, 150Ω Differential AC at 622Mbps

PARAMETERS	SYMBOL	CONDITIONS	FCI-H622M-InGaAs-75			UNITS
			MIN	TYP	MAX	
Supply Voltage	V_{CC}	---	+3	---	+3.6	V
Supply Current	I_{CC}	*T_A = 0 to 70°C	---	22	27	mA
Active Area Diameter	AA_ϕ	---	---	75	---	µm
Operating Wavelength	λ	---	1100	---	1650	nm
Responsivity	R_λ	*-37dBm, ¨-28dBm Differential	---	¨16	---	V/mW
Transimpedance	---	*-37dBm, ¨-28dBm Differential	---	¨18	---	kΩ
Sensitivity	S	BER 10^{-9}, PRBS2^7-1 with noise filter	---	-32	---	dBm
Optical Overload	---	---	---	0	---	dBm
Bandwidth	BW	-3dB, Small Signal	---	520	---	MHz
Differential Output Voltage	$V_{OUT, P-P}$	0dBm	---	240	---	mV_{P-P}
Output Impedance	---	Single-ended	---	75	---	Ω

Use AC coupling and differential 150 Ω load for the best high-speed performance. Devices are not designed to drive DC coupled 150 Ω grounded load.



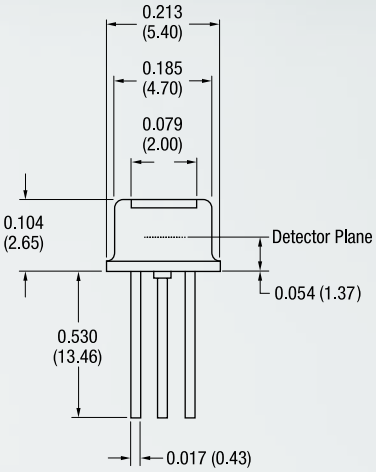


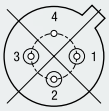
Bottom View

PINOUT

1	$\overline{D_{out}}$
2	V_{CC}
3	D_{out}
4	GND

Pin Circle Diameter = 0.100 (2.54)





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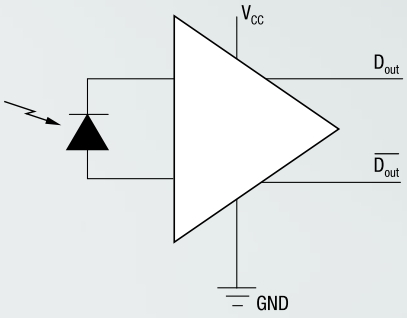

Notes:
- All units in inches (mm).
- All tolerances: 0.005 (0.125).
- Please specify when ordering the flat window or lens cap devices.
- The flat window devices have a double sided AR coated window at 1310nm.
- The thickness of the flat window=0.008 (0.21).