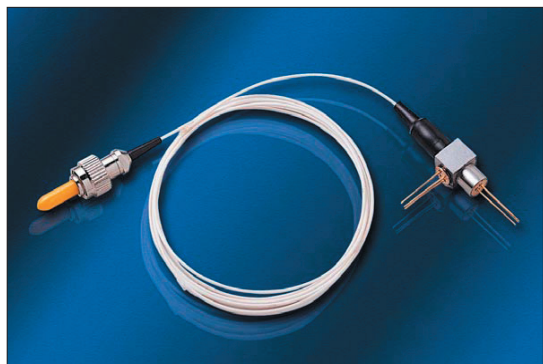




Features

- Single fiber bi-directional operation
- Laser diode with multi-quantum-well structure
- Low threshold current
- InGaAs/InP PIN Photodiode with trans-impedance amplifier
- High sensitivity with AGC*
- Differential ended output
- Single +3.3V Power Supply
- Integrated WDM coupler
- Un-cooled operation from -40°C to +85°C
- Hermetically sealed active component
- Single mode fiber pigtailed with optical FC/ST/SC/MU/LC connector
- Design for fiber optic networks
- RoHS Compliant available

Absolute Maximum Rating (Tc=25°C)

Parameter	Symbol	Value	Unit
Fiber Output Power L / M / H	P_f	1(L) / 1.5(M) / 2.5(H)	mW
LD Reverse Voltage	V_{RLD}	2	V
PIN-TIA Voltage	V_{CC}	4.5	V
Operating Temperature	T_{opr}	-40 to +85	°C
Storage Temperature	T_{stg}	-40 to +85	°C

(All optical data refer to a coupled 9/125μm SM fiber)

Optical and Electrical Characteristics(Tc=25°C)

Parameter	Symbol	Min	Typical	Max	Unit	Test Condition
Laser Diode						
Optical Output Power	L M H	Pf	0.2 0.5 1	0.35 0.75 1.6	0.5 1 -	mW CW, $I_{th}+20mA$, kink free
Peak Wavelength		λ	1290	1310	1330	nm CW, $P_f=P_f(\text{Min})$
Spectrum Width (RMS)		$\Delta\lambda$	-	-	3	nm CW, $P_f=P_f(\text{Min})$
Threshold Current		I_{th}	-	10	15	mA CW
Forward Voltage		V_F	-	1.2	1.5	V CW, $P_f=P_f(\text{Min})$
Rise/Fall Time		t_r/t_f	-	-	0.3	ns $I_{bias}=I_{th}$, 10% to 90%
Monitor Diode						
Monitor Current		I_m	100	-	-	μA CW, $P_f=P_f(\text{Min})$, $V_{RPD}=2V$
Dark Current		I_{DARK}	-	-	0.1	μA $V_{RPD}=5V$
Capacitance		C_t	-	6	15	pF $V_{RPD}=5V$, $f=1MHz$
Module						
Tracking Error		$\Delta P_f/P_f$	-1.5	-	1.5	dB APC, -40 to +85°C
Optical Crosstalk		CRT		< -45		dB

Note:

1.Pin assignment can be customized.

2.Specifications subject to change without notice.

Detector $\lambda=1480-1500\text{nm}$ **DC Electrical Characteristics($T_c=25^\circ\text{C}$)**

Parameter	Symbol		Min	Typical	Max	Unit	Test Condition
Power Supply	V_{CC}		3.0	3.3	3.6	V	
Differential Output Voltage	V_d	F02	-	-	1000	mV	
		F04	-	260	450		
		F06	185	250	415		
Supply Current (no load)	I_{CC}	F02	-	-	35	mA	
		F04	-	21	30		
		F06	-	26	50		

AC/Optical and Electrical Characteristics($T_c=25^\circ\text{C}$)

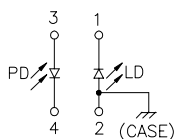
Parameter	Symbol		Min	Typical	Max	Unit	Test Condition
Detection Range			1480	-	1500	nm	-
Gain @ 10 Mbps Differential	G	F02	52	-	70	V/mW	Measure differentially, AC coupled, $R_L=50\Omega$
		F04	6	7	-		Measure differentially, AC coupled, $R_L=50\Omega$
		F06	1.92	2.5	3.4		Measure differentially with 30uAp-p signal
Bandwidth	BW	F02	120	140	-	MHz	
		F04	404	470	-		
		F06	700	920	1100		
Saturation Power	P_{sat}	F02	-3	0	-	dBm	$BER<10^{-10}$ @155Mbps PRBS 2 ²³ -1, $E_r=10\text{dB}$
		F04	-7	-6	-		$BER<10^{-10}$ @622Mbps PRBS 2 ²³ -1, $E_r=10\text{dB}$
		F06	-3	-	-		$BER<10^{-12}$ @1.25Gbps PRBS 2 ⁷ -1, $E_r=10\text{dB}$
Sensitivity	Sens.	F02	-	-38	-35	dBm	$BER<10^{-10}$ @155Mbps PRBS 2 ²³ -1, $E_r=10\text{dB}$
		F04	-	-33	-30		$BER<10^{-10}$ @622Mbps PRBS 2 ²³ -1, $E_r=10\text{dB}$
		F06	-	-26	-23		$BER<10^{-12}$ @1.25Gbps PRBS 2 ⁷ -1, $E_r=10\text{dB}$
Output Resistance	R_{out}	F02	-	50	-	ohm	
		F04	48	50	52		
		F06	48	50	62		

Pin Assignment

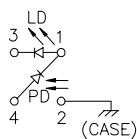
Pin Assignment

LD Pin Assignment

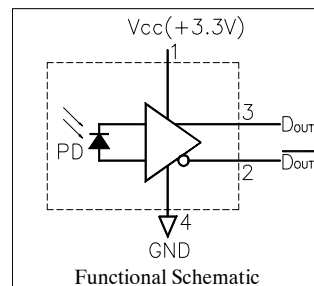
A Type
Pin 1 : Laser Cathode
Pin 2 : Laser Anode and Case Gnd
Pin 3 : Monitor Diode Anode
Pin 4 : Monitor Diode Cathode



D Type
Pin 1 : Laser Anode and Monitor Diode Cathode
Pin 2 : Case Gnd
Pin 3 : Laser Cathode
Pin 4 : Monitor Diode Anode



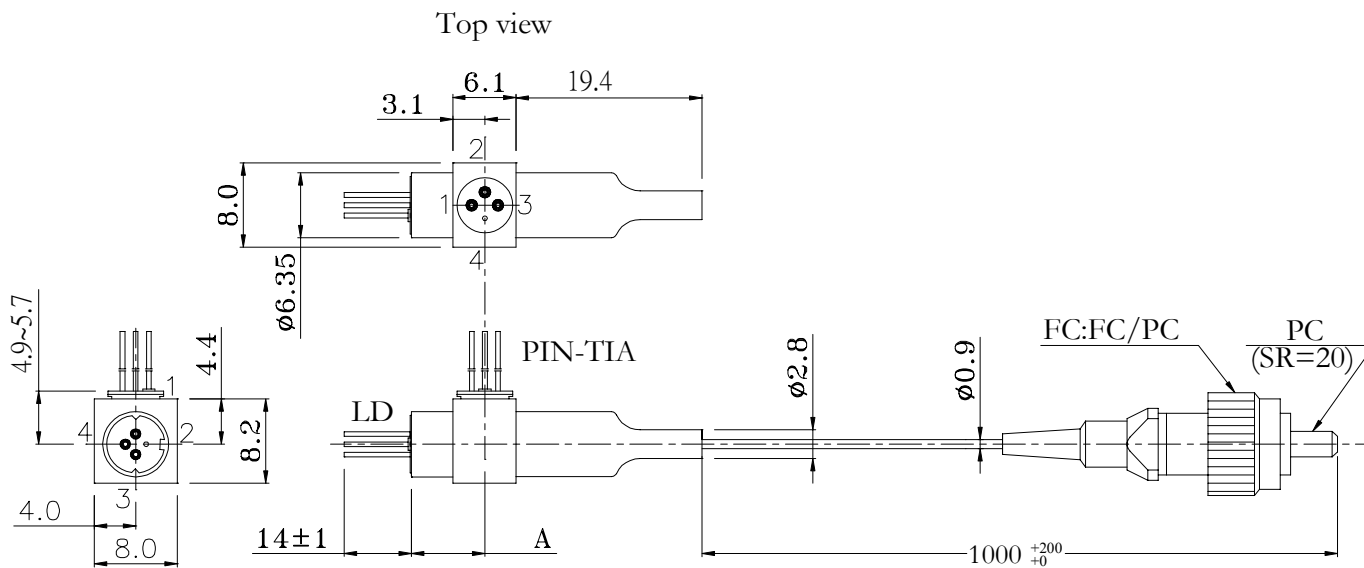
PIN-TIA Pin Assignment



Outline Dimensions

Units in mm.

Part Number: C-13/14-FXX-PX-SXXX/XXX-XX



DIMENSION: A:7.0~7.6 mm (Low & Middle power)
A:9.3~9.9 mm (High power)

Ordering Information

C-13/14-FXX-PX-SXXX/XXX-XX

1310nm Transmitter
1490nm Receiver

Package
P=Pigtail

Connector
FC/ST/SC/MU/LC/-

- : PC Fiber
APC : APC Fiber

02: 155 Mb/s PIN-TIA +3.3V
04: 622 Mb/s PIN-TIA +3.3V
06: 1250 Mb/s PIN-TIA +3.3V

Pin Assignment
"- "=A Type
D =D Type

Fiber Output Power
L/M/H

RoHS Compliant
-/G5/GR
Blank = RoHS non-compliant product
G5 = RoHS 5/6-compliant product (lead exemption)
GR = Full RoHS compliant product (no exemption)

Warnings

Handling Precautions: This device is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.

Laser Safety: Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.

Legal Notice

IMPORTANT NOTICE!

All information contained in this document is subject to change without notice, at LuminentOIC's sole and absolute discretion. LuminentOIC warrants performance of its products to current specifications only in accordance with the company's standard one-year warranty; however, specifications designated as "preliminary" are given to describe components only, and LuminentOIC expressly disclaims any and all warranties for said products, including express, implied, and statutory warranties, warranties of merchantability, fitness for a particular purpose, and non-infringement of proprietary rights. Please refer to the company's Terms and Conditions of Sale for further warranty information.

LuminentOIC assumes no liability for applications assistance, customer product design, software performance, or infringement of patents, services, or intellectual property described herein. No license, either express or implied, is granted under any patent right, copyright, or intellectual property right, and LuminentOIC makes no representations or warranties that the product(s) described herein are free from patent, copyright, or intellectual property rights. Products described in this document are NOT intended for use in implantation or other life support applications where malfunction may result in injury or death to persons. LuminentOIC customers using or selling products for use in such applications do so at their own risk and agree to fully defend and indemnify LuminentOIC for any damages resulting from such use or sale.

THE INFORMATION CONTAINED IN THIS DOCUMENT IS PROVIDED ON AN "AS IS" BASIS. Customer agrees that LuminentOIC is not liable for any actual, consequential, exemplary, or other damages arising directly or indirectly from any use of the information contained in this document. Customer must contact LuminentOIC to obtain the latest version of this publication to verify, before placing any order, that the information contained herein is current.

© LuminentOIC, Inc. 2006
All rights reserved