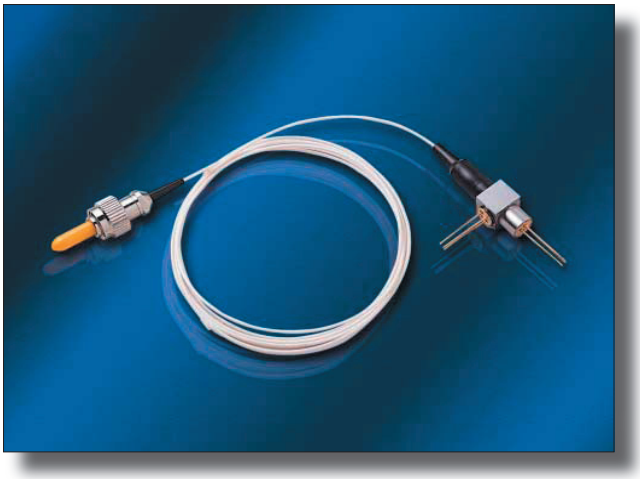
1550nm Emitting , 1310nm Receiving (PIN-TIA, 5V), Bi-directional Diplexer Optical Module

C-15/13-FXX-PX-SXXX/XXX-XX



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 +5V Power Supply
- Integrated WDM coupler
- Un-cooled operation from -40°C to +85°C
- Hermetically sealed active component
- Single mode fiber pigtailed with optional FC/ST/SC/MU/LC connector
- LC/SC BOSA
- 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	0.6(L)/1(M)/2(H)	mW
LD Reverse Voltage	V_{RLD}	2	V
PIN-TIA Voltage	V_{CC}	6	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 single-mode fiber)

Optical and Electrical Characteristics(Tc=25°C)

Parameter	Symbol	Min	Typical	Max	Unit	Test Condition
Laser Diode						
Optical Output Power	L M H	0.2 0.5 1	- - 1.6	0.5 1.0 -	mW	CW, I_{th}+ 25mA , kink free
Peak Wavelength	λ	1530	1550	1570	nm	CW, P_f=P_f(Min)
Spectrum Width (RMS)	Δλ	-	-	3	nm	CW, P_f=P_f(Min)
Threshold Current	I_{th}	-	10	15	mA	CW
Forward Voltage	V_F	-	1.2	1.5	V	CW, P_f=P_f(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(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	ΔPf/Pf	-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 λ=1100-1360nm

DC Electrical Characteristics(Tc=25°C)

Parameter	Symbol		Min	Typical	Max	Unit	Test Condition
Power Supply	V_{CC}		4.5	5	5.5	V	
Differential Output Voltage	V_d	F01	-	1000	-	mV	
		F03	-	260	450		
		F05	185	250	415		
Supply Current (no load)	I_{CC}	F01	-	-	35	mA	
		F03	-	21	30		
		F05	-	26	50		

AC/Optical and Electrical Characteristics(Tc=25°C)

Parameter	Symbol		Min	Typical	Max	Unit	Test Condition
Detection Range			1100	1310	1360	nm	-
Gain @ 10 Mbps Differential	G	F01	0.17	-	220	V/mW	Measure differentially, AC coupled, RL=50Ω
		F03	6	7	-		Measure differentially, AC coupled, RL=50Ω
		F05	1.92	2.5	3.4		Measure differentially with 30uVp-p signal
Bandwidth	BW	F01	120	140	-	MHz	
		F03	404	470	-		
		F05	700	920	1100		
Saturation Power	Psat	F01	-3	0	-	dBm	BER<10^{-10} @155Mbps PRBS 2^{23}-1,Er=10dB
		F03	-7	-6	-		BER<10^{-10} @622MbpsPRBS 2^{23}-1,Er=10dB
		F05	-3	-	-		BER<10^{-12} @1.25GbpsPRBS 2^{7}-1,Er=10dB
Sensitivity	Sens.	F01	-	-37	-35	dBm	BER<10^{-10} @155Mbps PRBS 2^{23}-1,Er=10dB
		F03	-	-33	-30		BER<10^{-10} @622MbpsPRBS 2^{23}-1,Er=10dB
		F05	-	-26	-23		BER<10^{-12} @1.25GbpsPRBS 2^{7}-1,Er=10dB
Output Resistance	Rout	F01	-	50	65	ohm	
		F03	48	50	52		
		F05	48	50	62		

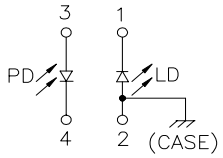
20550 Nordhoff St. • Chatsworth, CA 91311 • tel: 818.773.9044 • fax: 818.576.9486
9F, No 81, Shui Lee Rd. • Hsinchu, Taiwan, R.O.C. • tel: 886.3.5169222 • fax: 886.3.5169213

Pin Assignment

LD Pin Assignment

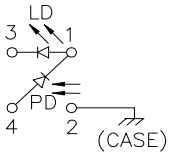
A Type

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

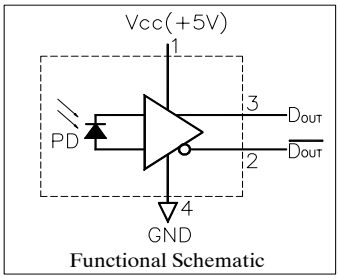


D Type

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

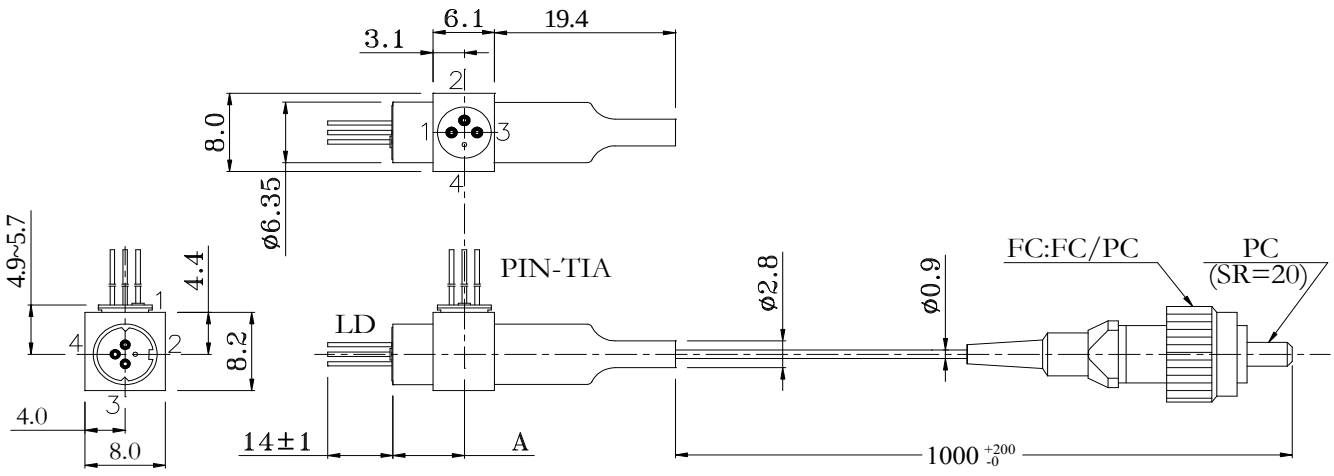


Functional Schematic

Outline Demensions Units in mm.

Part Number: C-13/15-FXX-PX-SXXX/XXX-XX

Top view



Left side view Front view

DIMENSION: A:7.0~7.6 mm (Low power)

Ordering Information

C-15/13-FXX-PX-SXXX/XXX-XX

- 1550nm Transmitter / 1310nm Receiver
- FXX: 01: 155 Mb/s PIN-TIA +5V; 03: 622 Mb/s PIN-TIA +5V; 05:1250 Mb/s PIN-TIA +5V
- PX: Package P=Pigtail
- SXXX: Pin Assignment "-"=A Type, D =D Type
- XXX: Connector FC/ST/SC/MU/LC/-; Fiber Output Power L/M/H
- XX: - : PC Fiber, APC : APC Fiber
- 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.

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