

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, $P_f=P_f(\text{Min})$
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 $\lambda=1100-1360\text{nm}$

DC Electrical Characteristics($T_c=25^\circ\text{C}$)

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($T_c=25^\circ\text{C}$)

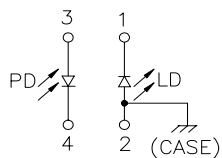
Parameter	Symbol	Min	Typical	Max	Unit	Test Condition
Detection Range		1100	1310	1360	nm	-
Gain @ 10 Mbps Differential	G	F01	0.17	-	220	Measure differentially, AC coupled, $R_L=50\Omega$
		F03	6	7	-	Measure differentially, AC coupled, $R_L=50\Omega$
		F05	1.92	2.5	3.4	Measure differentially with 30uVp-p signal
Bandwidth	BW	F01	120	140	-	MHz
		F03	404	470	-	
		F05	700	920	1100	
Saturation Power	P _{sat}	F01	-3	0	-	BER<10 ⁻¹⁰ @155Mbps PRBS 2 ²³ -1, Er=10dB
		F03	-7	-6	-	BER<10 ⁻¹⁰ @622Mbps PRBS 2 ²³ -1, Er=10dB
		F05	-3	-	-	BER<10 ⁻¹² @1.25Gbps PRBS 2 ⁷ -1, Er=10dB
Sensitivity	Sens.	F01	-	-37	-35	BER<10 ⁻¹⁰ @155Mbps PRBS 2 ²³ -1, Er=10dB
		F03	-	-33	-30	BER<10 ⁻¹⁰ @622Mbps PRBS 2 ²³ -1, Er=10dB
		F05	-	-26	-23	BER<10 ⁻¹² @1.25Gbps PRBS 2 ⁷ -1, Er=10dB
Output Resistance	R _{out}	F01	-	50	65	ohm
		F03	48	50	52	
		F05	48	50	62	

Pin Assignment

LD Pin Assignment

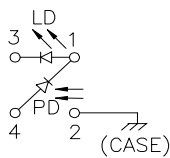
A Type

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

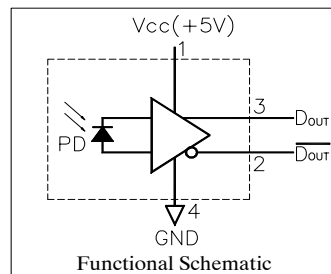


D Type

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



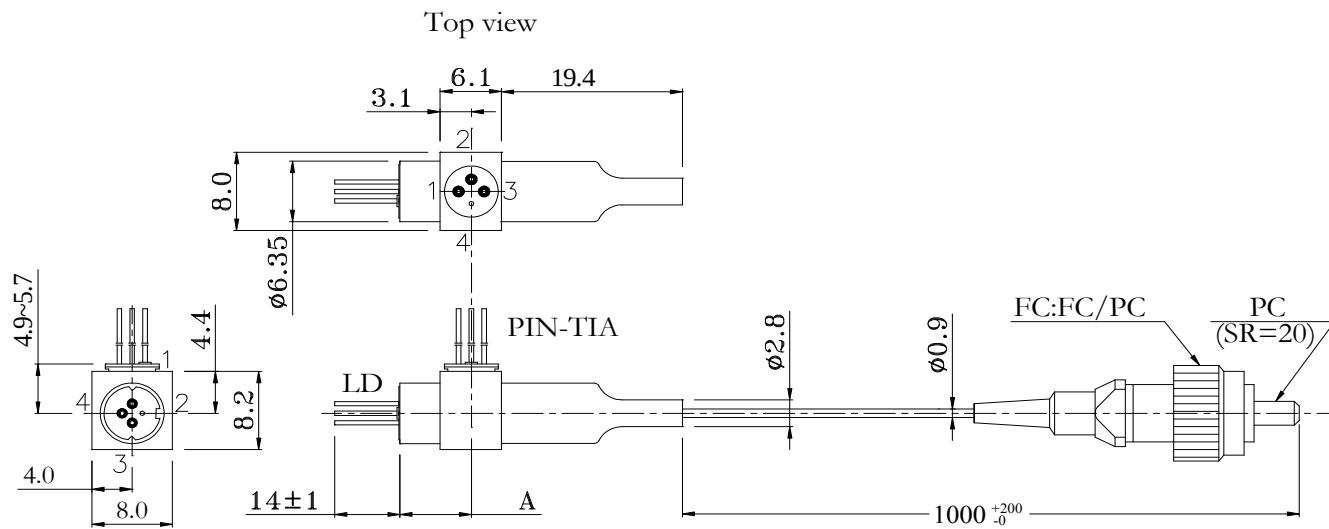
PIN-TIA Pin Assignment



Outline Dimensions

Units in mm.

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



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 ReceiverPackage
P=PigtailConnector
FC/ST/SC/MU/LC/-- : PC Fiber
APC : APC Fiber01: 155 Mb/s PIN-TIA +5V
03: 622 Mb/s PIN-TIA +5V
05: 1250 Mb/s PIN-TIA +5VPin Assignment
"- "=A Type
D =D TypeFiber Output Power
L/M/HRoHS 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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