



Features

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

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}	4.5	V
Operating Temperature	T_{opr}	-40 to +85	°C
Storage Temperature	T_{stg}	-40 to +85	°C

Optical and Electrical Characteristics (Tc=25°C)

Parameter	Symbol	Min	Typical	Max	Unit	Test Condition
Laser Diode						
Optical Output Power	L	0.2	-	0.5	mW	CW, I _{th} + 25 mA , kink free
	M	0.5	-	1.0		
	H	1	1.6	-		
Peak Wavelength	λ	1530	1550	1570	nm	CW, P _f =P _f (Min)
Spectrum Width (RMS)	$\Delta\lambda$	-	-	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	$\Delta P_f/P_f$	-	-	±1.5	dB	APC, -40 to +85°C
Optical Crosstalk	CRT	-	< -45	-	dB	-

Detector DC Electrical Characteristics(Tc=25°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	-	-	1	V	
		F04	-	-	0.6		
		F06	-	-	0.6		
Supply Current (no load)	I _{cc}	F02	-	-	35	mA	
		F04	-	30	40		
		F06	-	30	42		

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

Parameter	Symbol	Min	Typical	Max	Unit	Test Condition	
Detection Range		1100	1310	1430	nm	-	
Gain @ 10 Mbps Differential	G	F02	52	-	70	V/mW	λ=1310 nm
		F04	-	32	-		
		F06	-	8	-		
Bandwidth	BW	F02	120	140	-	MHz	
		F04	415	-	-		
		F06	830	-	-		
Saturation Power	P _{sat}	-3	0	-	dBm	λ=1310 nm	
Sensitivity	S _{ens}	F02	-	-38	-35	dBm	BER=10 ⁻¹⁰ @155Mbps
		F04	-	-31	-29		BER=10 ⁻¹⁰ @622Mbps
		F06	-	-25	-23		BER=10 ⁻¹⁰ @1.25Gbps
Output Resistance	R _{out}	-	50	-	ohm		

Ordering Information

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

1550nm Transmitter
1310nm Receiver

Package
P=Pigtail
B=BOSA

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

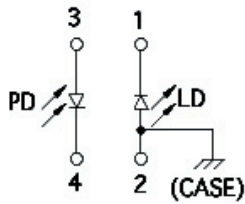
Fiber Output Power
L/M/H

Pin Assignment

LD Pin Assignment

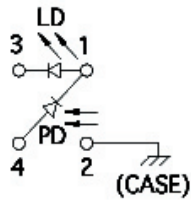
A Type

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

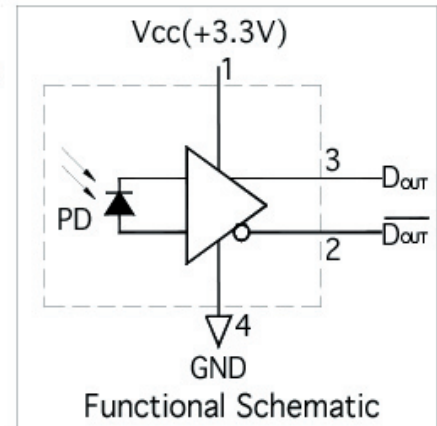


D Type

- 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

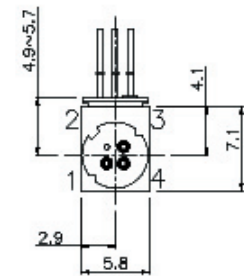
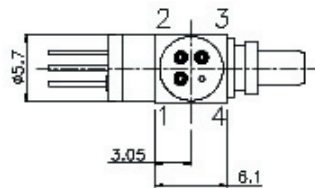


Outline Dimensions

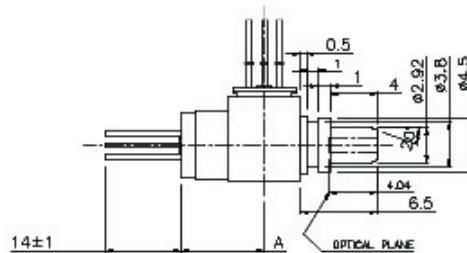
C-15/13-Fxx-Bx-SLCx

Unit in mm

Top view



Left side view



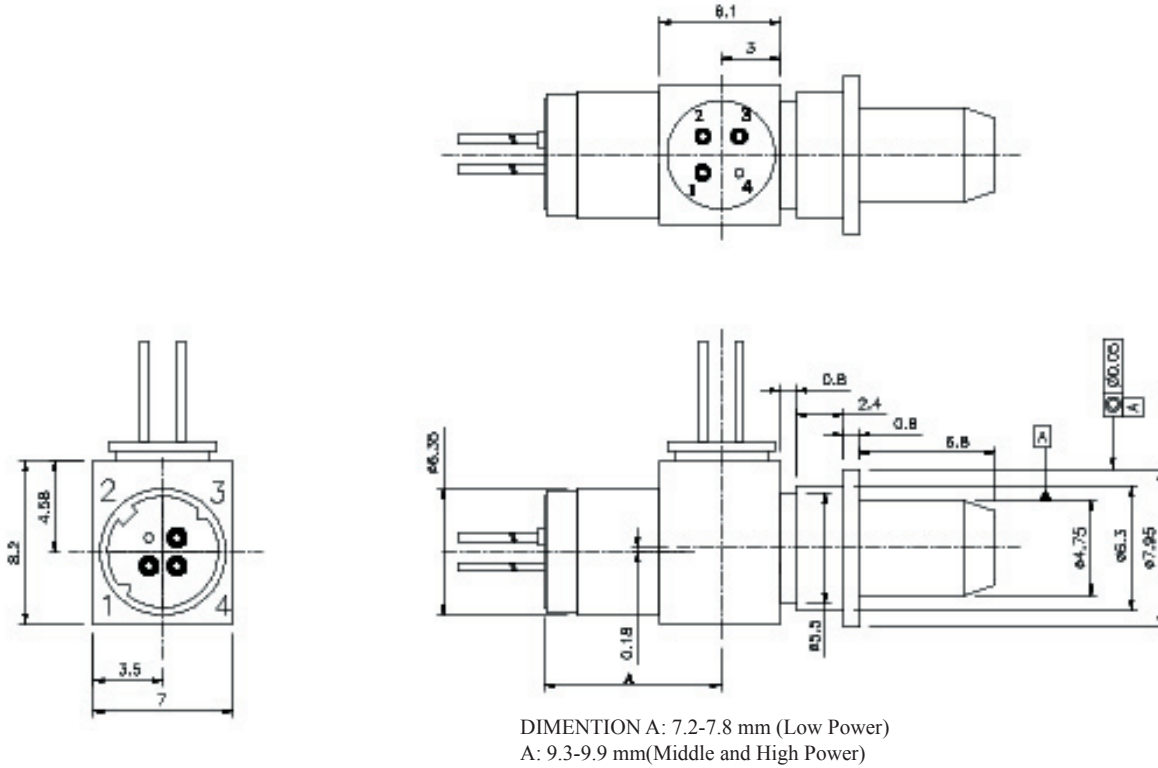
Front view

P.S.: A:6.7~7.3 mm (Low power)
A:9.0~9.6 mm (Middle & High power)

Outline Dimensions

C-15/13-Fxx-Bx-SSCx

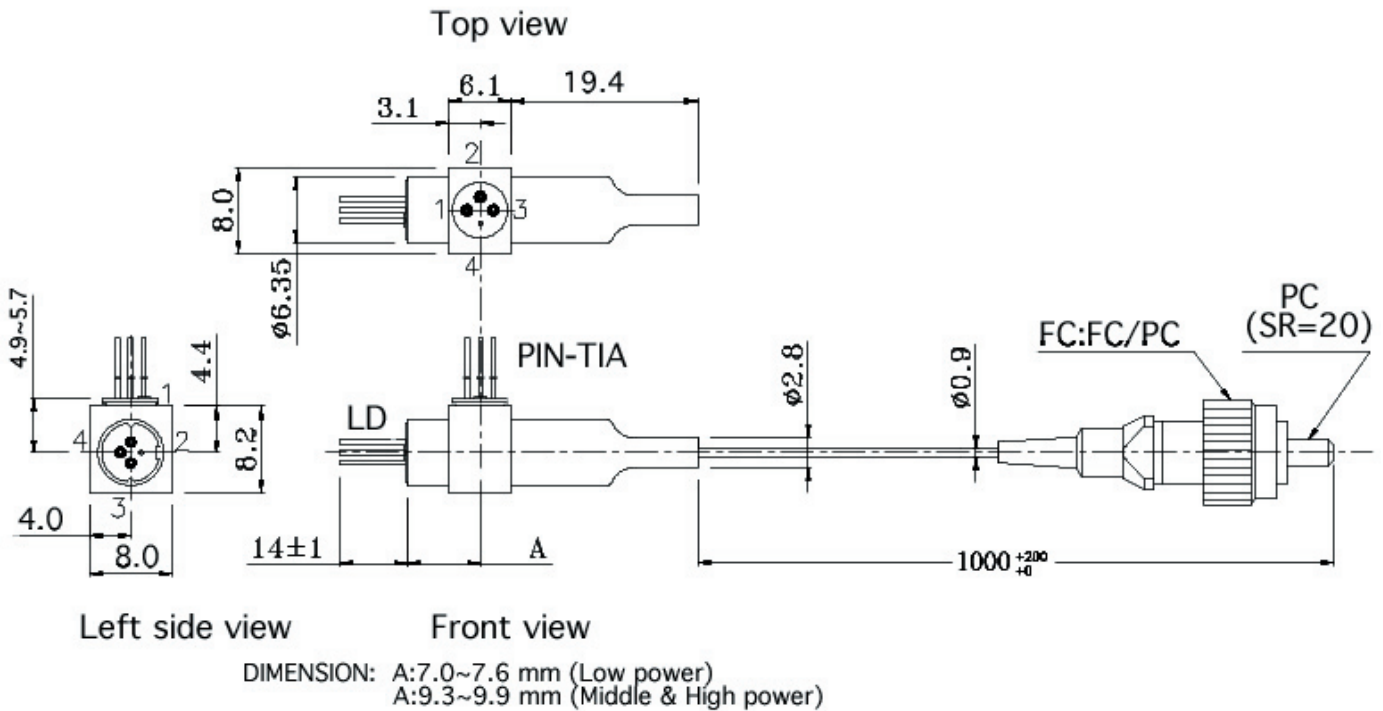
Unit in mm



Outline Dimensions

C-15/13-Fxx-Px-Sxxx/xxx

Unit in mm



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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