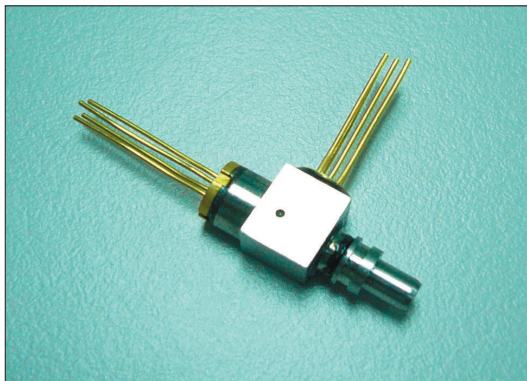


## C-15/13-F02-BD-NLCM



### 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
- LC BOSA
- Design for fiber optic networks application

### Absolute Maximum Rating (Tc=25°C)

Parameter	Symbol	Value	Unit
Fiber Output Power M	$P_f$	1(M)	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 62.5/125µm Multimode fiber)

### Optical and Electrical Characteristics( Tc=25°C)

Parameter	Symbol	Min	Typical	Max	Unit	Test Condition
<b>Laser Diode</b>						
Optical Output Power	M	0.5	-	1	mW	CW, $I_{th} + 25mA$ , kink free
Peak Wavelength	$\lambda$	1530	1550	1570	nm	CW, $P_f = P_f(\text{Min})$
Spectrum Width (RMS)	$\Delta\lambda$	-	2	5	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	$t_r / t_f$	-	-	0.5	ns	$I_{bias} = I_{th}$ , 10% to 90%
<b>Monitor Diode</b>						
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	$V_{RPD} = 5V$ , $f = 1MHz$
<b>Module</b>						
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 <sub>cc</sub>	3.0	3.3	3.6	V	
Differential Output Voltage	V <sub>d</sub>	-	-	1	V	
Supply Current (no load)	F02	-	-	35	mA	

#### 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	52	-	70	V/mW	Measure differentially, AC coupled, R <sub>L</sub> =50Ω
Bandwidth	BW	120	140	-	MHz	
Saturation Power	P <sub>sat</sub>	-3	0	-	dBm	BER<10 <sup>-10</sup> @155Mbps PRBS 2 <sup>23</sup> -1, Er=10dB
Sensitivity	Sens.	-	-37	-35	dBm	BER<10 <sup>-10</sup> @155Mbps PRBS 2 <sup>23</sup> -1, Er=10dB
Output Resistance	R <sub>out</sub>	-	50	-	ohm	

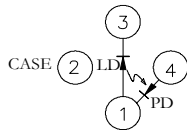
## C-15/13-F02-BD-NLCM

### Pin Assignment

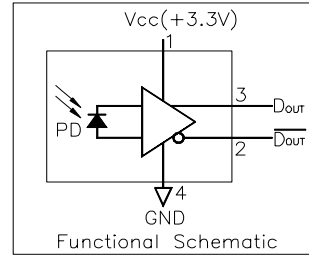
#### LD Pin Assignment

D Type

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

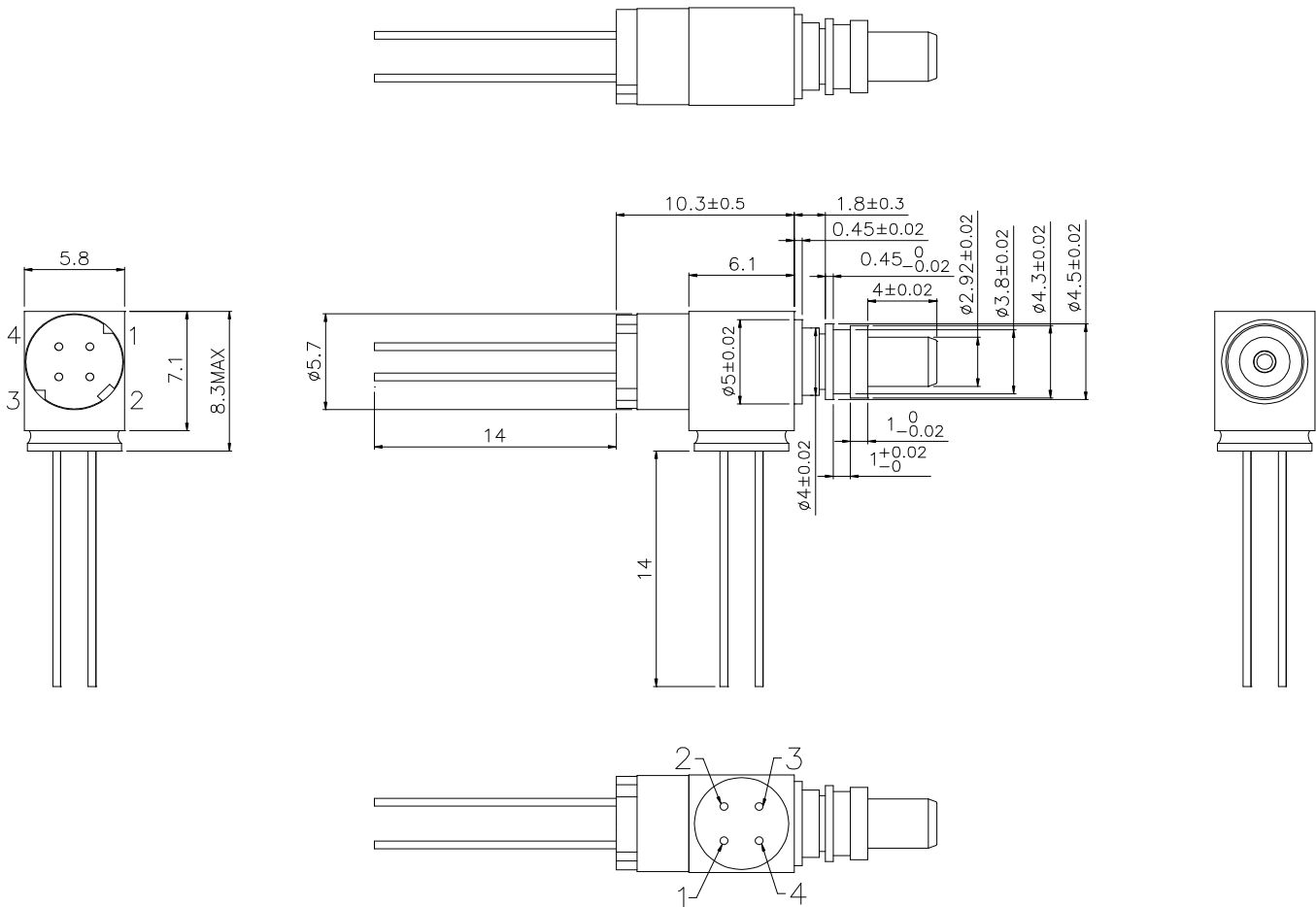


#### PIN-TIA Pin Assignment



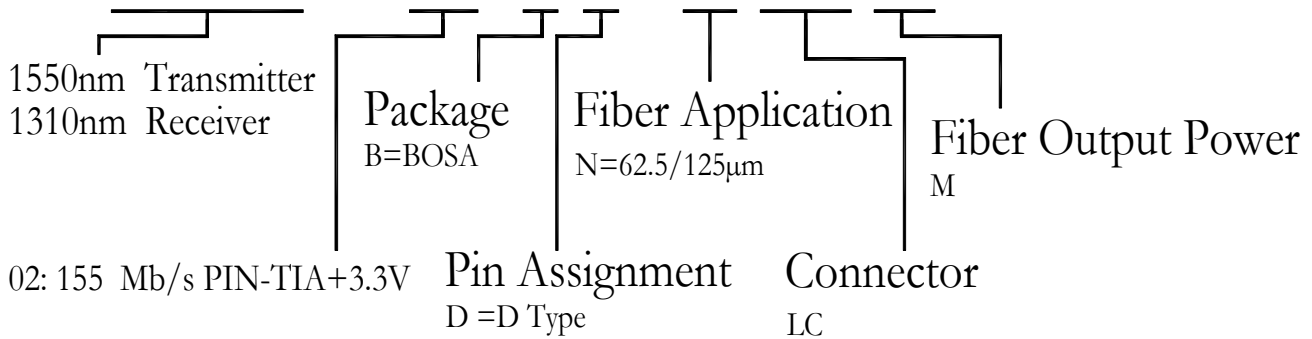
### Outline Dimensions

Units in mm.



Ordering Information

# C-15/13-F02-BD-NLCM



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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