

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 0°C to +70°C
- Hermetically sealed active component
- SC receptacle package
- 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}	4.5	V
Operating Temperature	T_{opr}	0 ~ +70	°C
Storage Temperature	T_{stg}	-40 ~ +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	0.2 0.5 1	- - 1.6	0.5 1 -	mW	CW, I _{th} + 20mA , kink free
Peak Wavelength	λ	1295	1310	1325	nm	CW, P _f =P _f (Min)
Side mode Supperssion	$\Delta\lambda$	30	35	-	nm	CW, P _f =P _f (Min),0~70°C
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% ~ 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	-	1.5	dB	APC, 0 ~ +70°C
Optical Crosstalk	CRT		< -45		dB	

Note:

- 1.Pin assignment can be customized.
- 2.Specifications subject to change without notice.

C-13/15-DXX-BX-SSCX-XX

Detector $\lambda=1480\sim 1650\text{nm}$

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	D02	-	-	1000	mV	
		D04	-	260	450		
		D06	185	250	415		
Supply Current (no load)	I_{cc}	D02	-	-	35	mA	
		D04	-	21	30		
		D06	-	26	50		

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

Parameter	Symbol	Min	Typical	Max	Unit	Test Condition	
Detection Range		1480	1550	1650	nm	-	
Gain @ 10 Mbps Differential	G	D02	52	-	70	V/mW	Measure differentially, AC coupled, $R_L=50\Omega$ Measure differentially, AC coupled, $R_L=50\Omega$ Measure differentially with 30uAp-p signal
		D04	6	7	-		
		D06	1.92	2.5	3.4		
Bandwidth	BW	D02	120	140	-	MHz	
		D04	404	470	-		
		D06	700	920	1100		
Saturation Power	P _{sat}	D02	-3	0	-	dBm	BER<10 ⁻¹⁰ @155Mbps PRBS 2 ²³ -1,Er=10dB BER<10 ⁻¹⁰ @622Mbps PRBS 2 ²³ -1,Er=10dB BER<10 ⁻¹² @1.25Gbps PRBS 2 ⁷ -1,Er=10dB
		D04	-7	-6	-		
		D06	-3	-	-		
Sensitivity	Sens.	D02	-	-38	-35	dBm	BER<10 ⁻¹⁰ @155Mbps PRBS 2 ²³ -1,Er=10dB BER<10 ⁻¹⁰ @622Mbps PRBS 2 ²³ -1,Er=10dB BER<10 ⁻¹² @1.25Gbps PRBS 2 ⁷ -1,Er=10dB
		D04	-	-33	-30		
		D06	-	-26	-23		
Output Resistance	R _{out}	D02	-	50	-	ohm	
		D04	48	50	52		
		D06	48	50	62		

C-13/15-DXX-BX-SSCX-XX

Pin Assignment

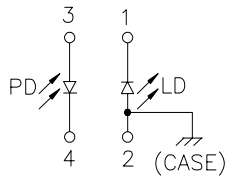
Units in mm.

Part Number: C-13/15-DXX-BX-SSCX-XX

LD Pin Assignment

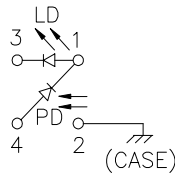
A Type

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

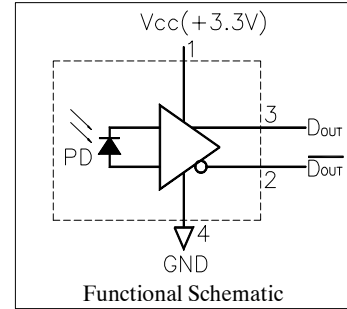


D Type

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

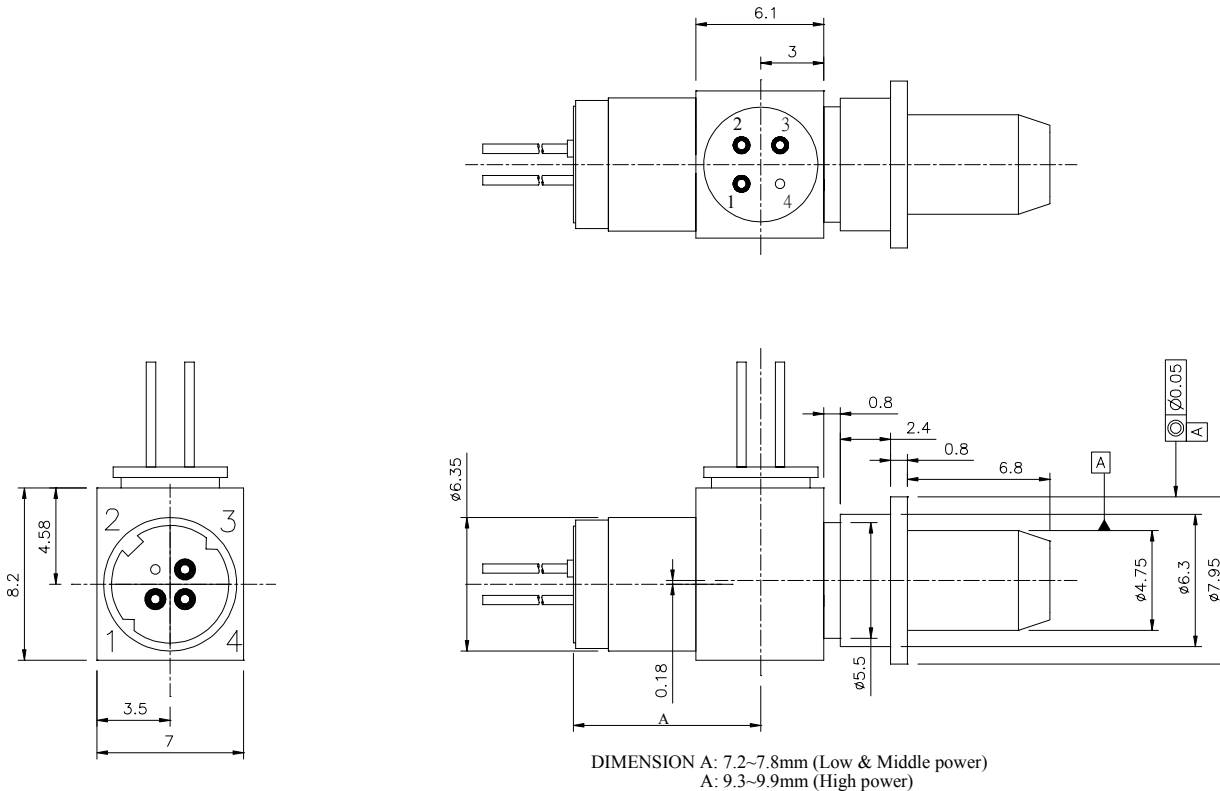


PIN-TIA Pin Assignment



Outline Dimensions

Units in mm.



Ordering Information

C-13/15-DXX-BX-SSCX-XX

1310nm Transmitter
1550nm Receiver

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

Package
B=BOSA

Pin Assignment
- = A Type
D = D Type

Fiber Application
S= 9/125 μ m

Connector
SC

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.

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