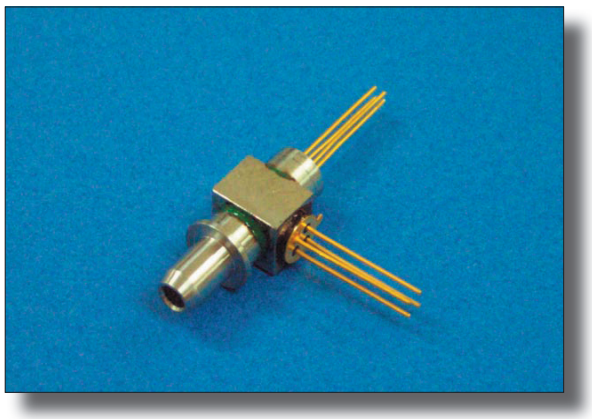
1310nm Emitting(DFB),1550nm Receiving(PIN-TIA,3.3V), Bi-directional Diplexer Optical Module

C-13/15-DXX-BX-SSCX-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 +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	Δλ	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	$I_{bias=Ith}$,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	ΔPf/Pf	-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.

Detector λ=1480~1650nm

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	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(Tc=25°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, RL=50Ω
		D04	6	7	-		Measure differentially, AC coupled, RL=50Ω
		D06	1.92	2.5	3.4		Measure differentially with 30uAp-p signal
Bandwidth	BW	D02	120	140	-	MHz	
		D04	404	470	-		
		D06	700	920	1100		
Saturation Power	Psat	D02	-3	0	-	dBm	BER<10^{-10} @155Mbps PRBS 2^{23}-1,Er=10dB
		D04	-7	-6	-		BER<10^{-10} @622Mbps PRBS 2^{23}-1,Er=10dB
		D06	-3	-	-		BER<10^{-12} @1.25Gbps PRBS 2^{7}-1,Er=10dB
Sensitivity	Sens.	D02	-	-38	-35	dBm	BER<10^{-10} @155Mbps PRBS 2^{23}-1,Er=10dB
		D04	-	-33	-30		BER<10^{-10} @622Mbps PRBS 2^{23}-1,Er=10dB
		D06	-	-26	-23		BER<10^{-12} @1.25Gbps PRBS 2^{7}-1,Er=10dB
Output Resistance	Rout	D02	-	50	-	ohm	
		D04	48	50	52		
		D06	48	50	62		

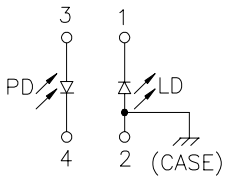
Pin Assignment — Units in mm.

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

LD Pin Assignment

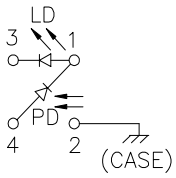
A Type

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

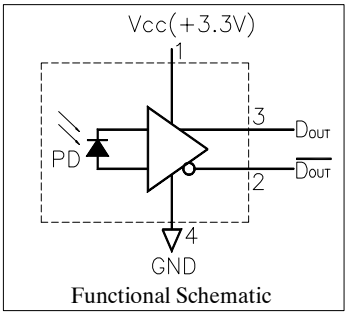


D Type

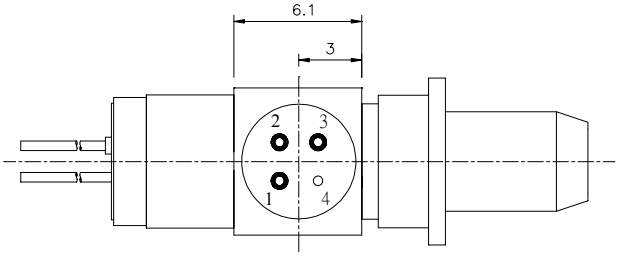
Pin 1 : Laser Anode and Monitor Diode Cathode
Pin 2 : Case Gnd
Pin 3 : Laser Cathode
Pin 4 : Monitor Diode Anode

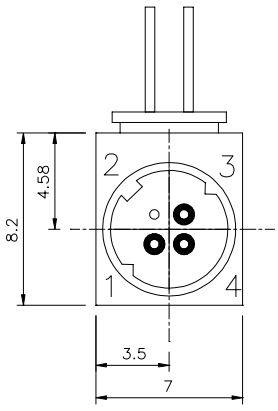


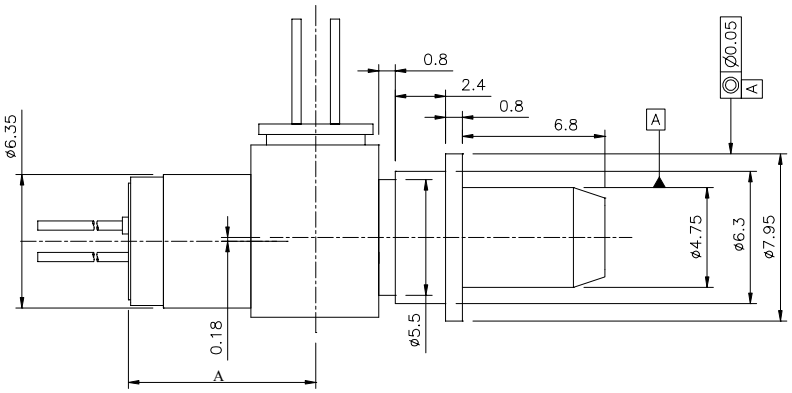
PIN-TIA Pin Assignment



Outline Dimensions — Units in mm.







DIMENSION A: 7.2~7.8mm (Low & Middle power)
A: 9.3~9.9mm (High power)

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= 9/125μm
- 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.

Legal Notice