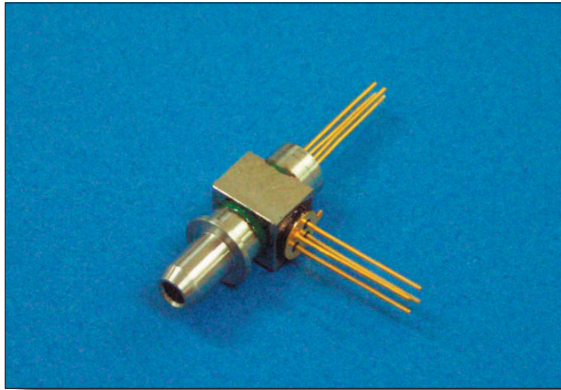


C-13/15-DXX-BX-SSCX-XX



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 | 0.2 | - | 0.5 | mW | CW, I _{th} + 20mA , kink free |
| | M | 0.5 | - | 1 | | |
| | H | 1 | 1.6 | - | | |
| 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.

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

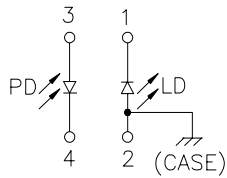
Units in mm.

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

LD Pin Assignment

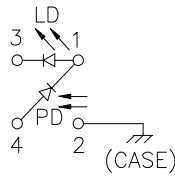
A Type

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

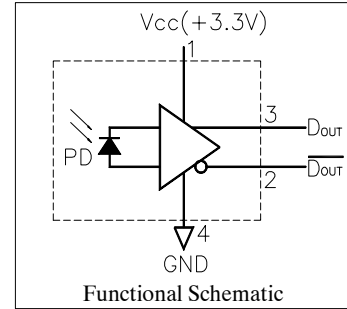


D Type

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



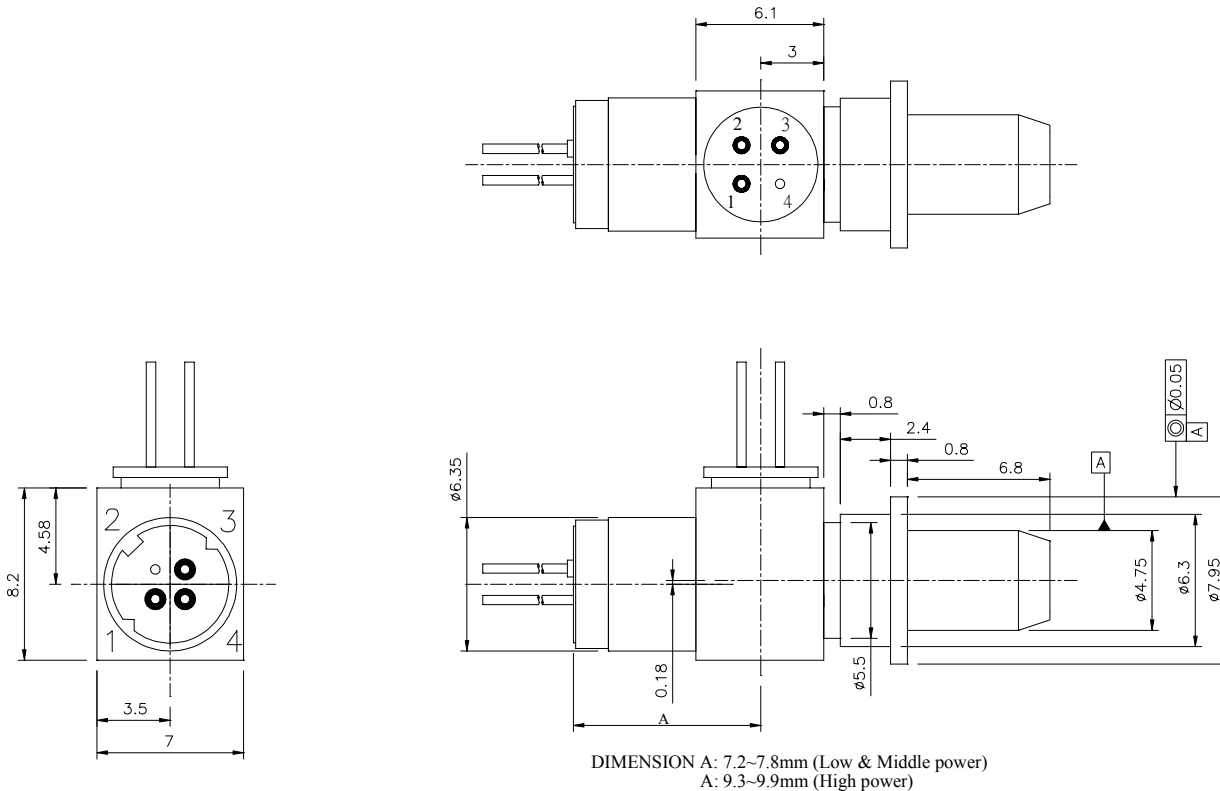
PIN-TIA Pin Assignment



Functional Schematic

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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