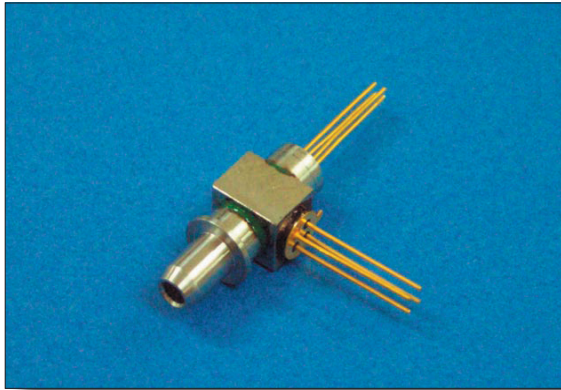


## C-13/15-DXX-BX-SSCX-XX



### 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                               |
|-----------------------|--------------------|-----------------|---------------|---------------|------|----------------------------------------------|
| <b>Laser Diode</b>    |                    |                 |               |               |      |                                              |
| Optical Output Power  | L<br>M<br>H        | 0.2<br>0.5<br>1 | -<br>-<br>1.6 | 0.5<br>1<br>- | mW   | CW, $I_{th} + 20mA$ , kink free              |
| Peak Wavelength       | $\lambda$          | 1295            | 1310          | 1325          | nm   | CW, $P_f = P_f(\text{Min})$                  |
| Side mode Supperssion | $\Delta\lambda$    | 30              | 35            | -             | nm   | CW, $P_f = P_f(\text{Min})$ , 0~70°C         |
| Threshold Current     | $I_{th}$           | -               | 10            | 15            | mA   | CW                                           |
| Forward Voltage       | $V_f$              | -               | 1.2           | 1.5           | V    | CW, $P_f = P_f(\text{Min})$                  |
| Rise/Fall Time        | $t_r / t_f$        | -               | -             | 0.3           | ns   | $I_{bias} = I_{th}$ , 10% ~ 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, 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, $R_L=50\Omega$              |
|                             |        | D04 | 6    | 7       | -    |      | Measure differentially, AC coupled, $R_L=50\Omega$              |
|                             |        | 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 <sup>-10</sup> @155Mbps PRBS 2 <sup>23</sup> -1, Er=10dB |
|                             |        | D04 | -7   | -6      | -    |      | BER<10 <sup>-10</sup> @622Mbps PRBS 2 <sup>23</sup> -1, Er=10dB |
|                             |        | D06 | -3   | -       | -    |      | BER<10 <sup>-12</sup> @1.25Gbps PRBS 2 <sup>7</sup> -1, Er=10dB |
| Sensitivity                 | Sens.  | D02 | -    | -38     | -35  | dBm  | BER<10 <sup>-10</sup> @155Mbps PRBS 2 <sup>23</sup> -1, Er=10dB |
|                             |        | D04 | -    | -33     | -30  |      | BER<10 <sup>-10</sup> @622Mbps PRBS 2 <sup>23</sup> -1, Er=10dB |
|                             |        | D06 | -    | -26     | -23  |      | BER<10 <sup>-12</sup> @1.25Gbps PRBS 2 <sup>7</sup> -1, Er=10dB |
| Output Resistance           | Rout   | D02 | -    | 50      | -    | ohm  |                                                                 |
|                             |        | D04 | 48   | 50      | 52   |      |                                                                 |
|                             |        | D06 | 48   | 50      | 62   |      |                                                                 |

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

### Pin Assignment

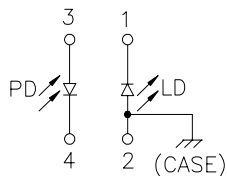
Units in mm.

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

### LD Pin Assignment

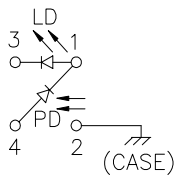
#### A Type

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

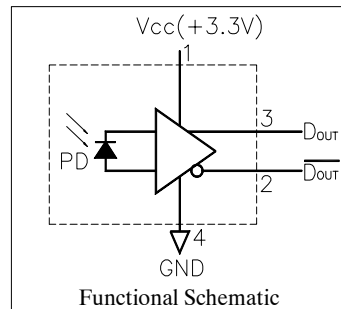


#### D Type

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

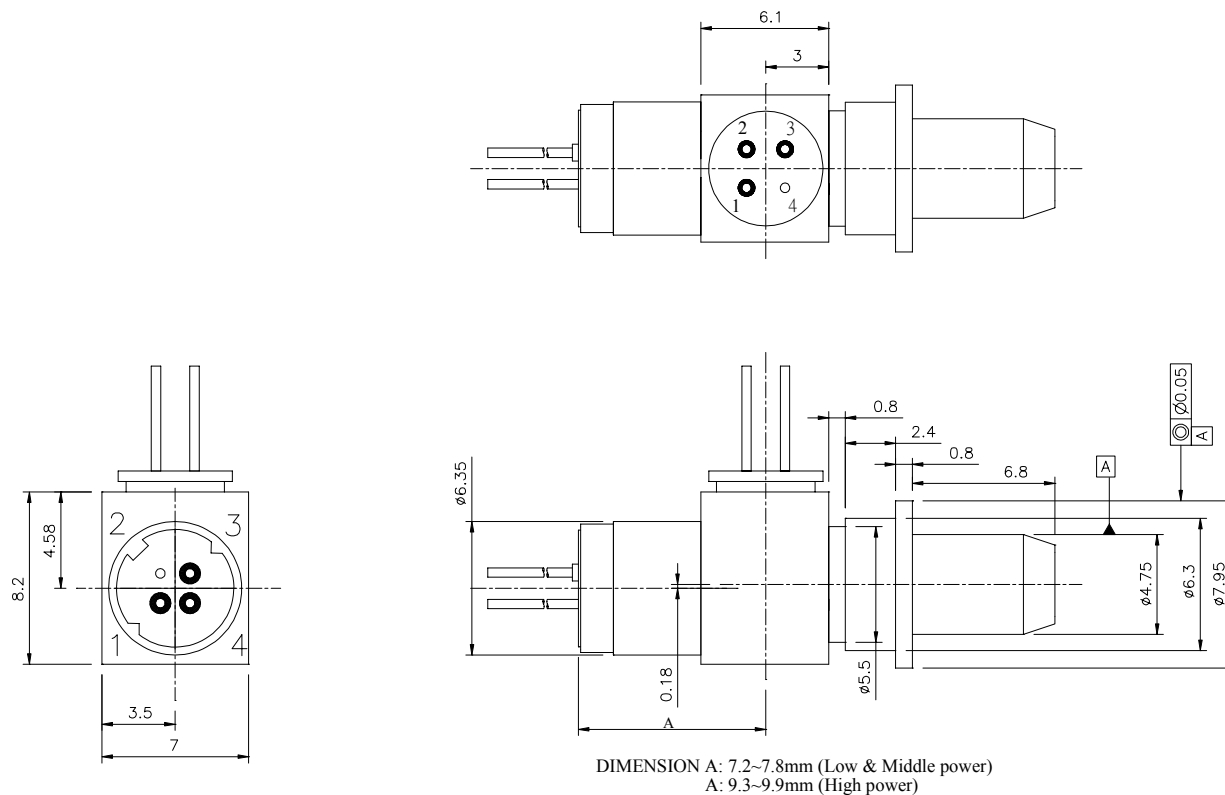


### PIN-TIA Pin Assignment



### 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

Connector  
SC

Fiber Application  
S= 9/125 $\mu$ m

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

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