
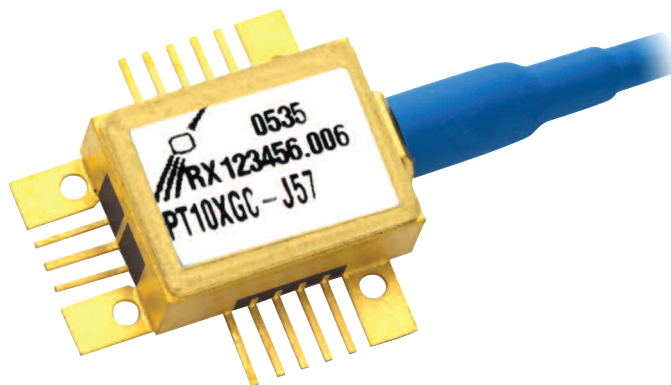


# 10Gb/s High Sensitivity Coplanar PIN Preamp Receiver PT10XGC

The module consists of a PIN photodetector, a low noise preamplifier, a connectorized single-mode fibre pigtail and a hermetic metal package with coplanar output. Optimized for use in 10 Gb/s long haul applications, either as a discrete device or within a transponder, using NRZ Modulation.

## Features:

- High sensitivity, -20.5dBm typical
- Surface mount MSA compliant
- Low capacitance high speed InGaAs PIN detector
- Hermetically sealed
- Designed to exceed the requirements of Bellcore GR468-CORE
- Single mode fibre tail
- Compatible with AT10GC APD Receiver
- Output stage limits at 400mVp-p differential eliminating the need for a post amplifier
- Low Power Consumption, only 235mW
- RoHS 5/6 compliant 



## Characteristics

TC = 25°C unless otherwise specified.

| Parameter  | Symbol | Min  | Typ   | Max  | Unit |
|--|--------|------|-------|------|------|
| Optical sensitivity $2^{31-1}$ BER $<10^{-12}$ [4] | Sens   |      | -20.5 | -19  | dBm  |
| Optical overload $2^{31-1}$ BER $<10^{-12}$        | Psat   | +1   |       |      | dBm  |
| High frequency -3 dB corner [2]                    | f3 dB  | 8    | 9     |      | GHz  |
| Return loss S22 (400 KHz to 7 GHz)                 |        |      |       | -8   | dB   |
| PiN bias voltage                                   | Vpd    |      | 5     |      | V    |
| Dark current                                       | Id     |      |       | 10   | nA   |
| PIN responsivity [1]                               | R      | 0.7  | 0.8   |      | A/W  |
| Amplifier bias voltage                             | Vee    |      | -5.2  |      | V    |
| Amplifier current consumption                      | lee    |      | 45    |      | mA   |
| Transimpedance gain [2] [3] [5]                    | TZG    | 1600 | 2200  | 3400 | Ohms |

### Notes

- [1] Optical wavelength between 1525nm – 1575nm.
- [2] Load impedance is 50Ω (AC coupled) with a return loss >20 dB, up to 20 GHz.
- [3] Excludes PIN responsivity.
- [4] Measured with 10 Gb/s NRZ PRBS data and no FEC.
- [5] Differential.

## Absolute Ratings

| Parameter                 | Symbol | Min | Max  | Unit |
|---------------------------|--------|-----|------|------|
| Amplifier bias voltage    | Vcc    | -6  | 0    | V    |
| Operating temperature [1] | Top    | -40 | 85   | °C   |
| Storage temperature [2]   | Tstg   | -40 | 85   | °C   |
| Optical input [3]         | po     |     | 10   | dBm  |
| Fibre bend radius         |        | 35  |      | mm   |
| Maximum PIN bias voltage  | Vpd    |     | +7.5 | V    |

### Notes (Absolute Ratings):

- [1] The operating temperature is defined as the temperature of the module case.
- [2] The rating is referred to ambient temperature.
- [3] The optical level that causes no damage to the module. However, the electrical and optical performance specified in this document may not be guaranteed.

### Pin Out

| Pin # | Symbol | Parameter        | Pin # | Symbol | Parameter       |
|-------|--------|------------------|-------|--------|-----------------|
| 1     | GND    | Case ground      | 10    | Out_P  | Positive output |
| 2     | Vpd    | PIN bias voltage | 11    | GND    | Case ground     |
| 3     | NC     | No connection    | 12    | GND    | Case ground     |
| 4     | Vee    | Amplifier Bias   | 13    | FBIN   | No connection   |
| 5     | NC     | No connection    | 14    | NC     | No connection   |
| 6     | GND    | Case ground      | 15    | NC     | No connection   |
| 7     | GND    | Case ground      | 16    | NC     | No connection   |
| 8     | Out_N  | Negative output  | 17    | GND    | Case ground     |
| 9     | GND    | Case ground      |       |        |                 |

### Circuit Schematic

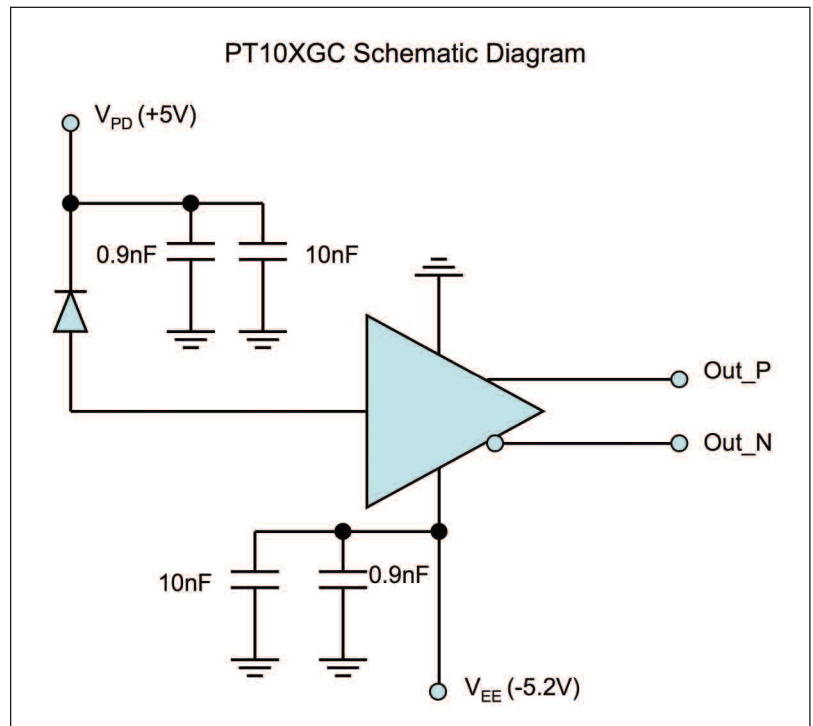


Figure 1: Schematic Diagram

### Typical Performance Characteristics

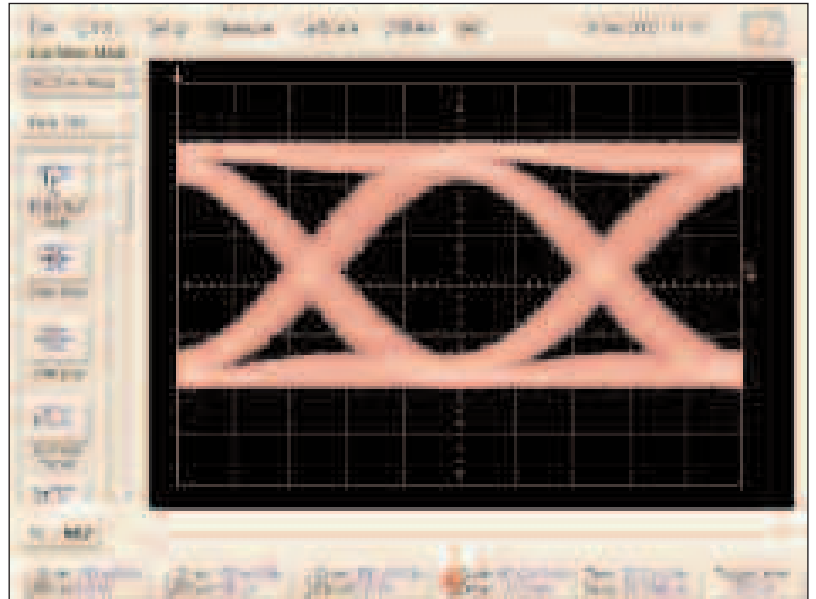


Figure 2: Typical eye diagram measured at 10 Gb/s with NRZ data

### Outline Drawing

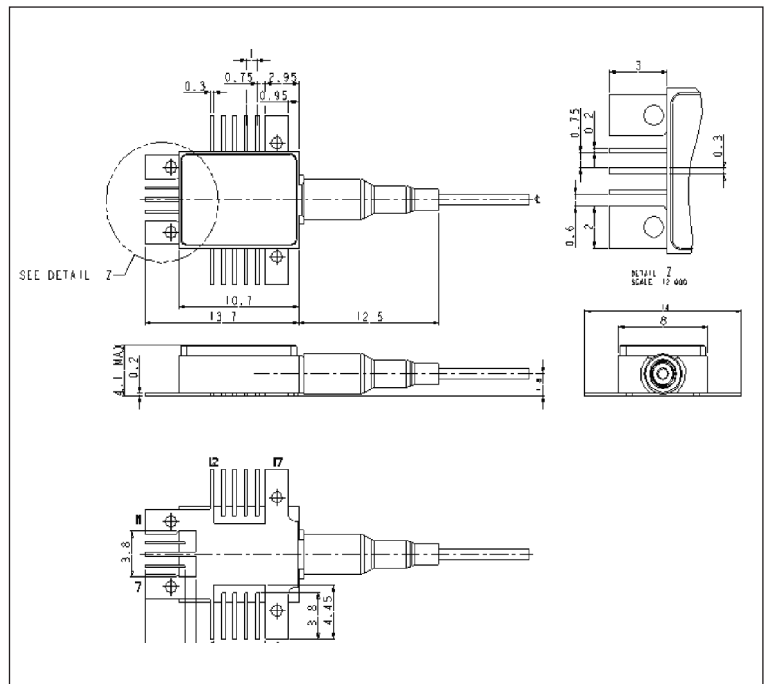


Figure 3: Outline Diagram

## RoHS Compliance



Bookham is fully committed to environment protection and sustainable development and has set in place a comprehensive program for removing polluting and hazardous substances from all of its products. The relevant evidence of RoHS compliance is held as part of our controlled documentation for each of our compliant products. RoHS compliance parts are available to order, please refer to the ordering information section for further details.

### Ordering Information

PT10XGC - (Connector)  
 J = SC/PC  
 J57 = LC

e.g. PT10XGC-J is a PT10XGC with an SC/PC connector.

Other options available on request

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