



MIOC-1550-18-BC



DEVICE

Multi-functional Integrated Optical Chip 1550 nm, 18 mm Chip Length

OVERVIEW

The Optilab MIOC-1550-18-BC is the optical chip of Fiber Optic Gyroscope (FOG) for rotational rate sensing and inertial navigation systems. This Integrated Optic Chip (IOC) device is composed of a polarizer, a Y-junction coupler and dual electro optic phase modulators. Based on Lithium Niobate (LiNbO3), MIOC-1550-18-BC is fabricated with Annealed Proton Exchange (APE) optical waveguides. The MIOC-1550-18-BC features Polarization Extinction Ratio (PER) exceeding 60 dB. The MIOC-1550-18-BC assures high reliability and performance over wide temperature range and is compatible with a variety of PM fibers. Contact Optilab for more information.

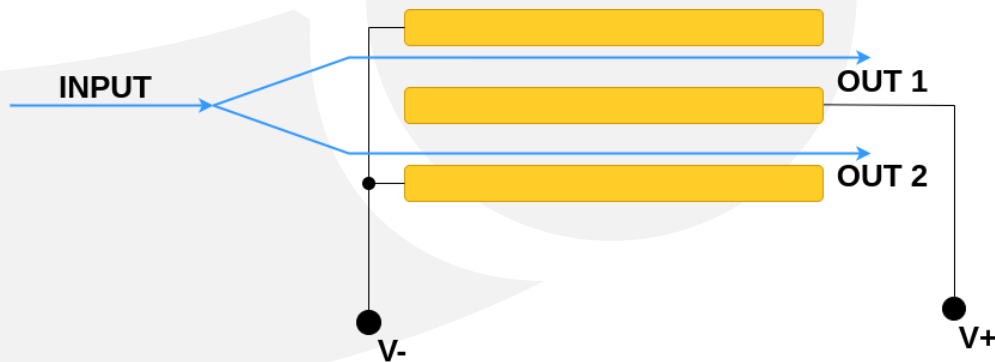
FEATURES

- 1550 ± 20 nm operation
- Low insertion loss
- Polarization extinction ratio > 60 dB
- Low V_{π} voltage
- Low Polarization crosstalk
- PM fiber pigtails

USE IN

- Fiber Optic Gyroscope (FOG)
- Fiber Optic Current Sensor (FOCS)
- Hydrophone and other optic sensitive fields
- Research and development

FUNCTIONAL DIAGRAM





MIOC-1550-18-BC

ABSOLUTE MAXIMUM RATING ($T_c = 25\text{ }^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Conditions | Min | Max | Unit |
|----------------------------|-----------|-------------|-----|-----|------------------|
| Optical Input Power | OP_{in} | CW | | 100 | mW |
| Drive Voltage | V_{in} | CW or Pulse | -25 | +25 | V |
| Operation Case Temperature | T_c | | -45 | 75 | $^\circ\text{C}$ |
| Storage Temperature | T_{st} | | -45 | 85 | $^\circ\text{C}$ |

GENERAL SPECIFICATIONS at Room Temperature ($T_c = 25\text{ }^\circ\text{C}$)

| Parameter | Symbol | Unit | P Grade | A Grade | B Grade |
|------------------------------------|-----------|---------------|--------------|------------|------------|
| Operating Wavelength | λ | nm | 1520 ~ 1570 | | |
| Insertion Loss | IL | dB | ≤ 2.5 | ≤ 3.0 | ≤ 3.5 |
| Splitting Ratio | SR | % | 50 ± 2 | 50 ± 3 | 50 ± 5 |
| Half Wave Voltage | V_{pi} | V | ≤ 4.0 | ≤ 4.0 | ≤ 4.3 |
| Chip Polarization Extinction Ratio | PER | dB | ≥ 60 | | |
| Residual Intensity Modulator | RIM | % | ≤ 0.1 | ≤ 0.1 | ≤ 0.2 |
| Chip Length | L | mm | 18.0 +/- 0.1 | | |
| Waveguide Separation Distance | G | μm | 400 +/- 1 | | |
| End facet Polish Angle | α | degree | 10 +/- 0.3 | | |





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Ordering Option:

MIOC-1550-LL-FF-G-XX-YY-ZZ

LL: Chip Length

- 18: 18 mm
- 22: 22 mm

FF: Form Factor

- BC: Bare chip
- SB: Bare chip on submount
- SP: Fiber pigtailed w/ submount
- PG: Packaged

G: Grade

- P: Premium grade
- A: A grade
- B: B grade

XX: Input Fiber

YY: Output Fiber #1

ZZ: Output Fiber #2

For each fiber:

First digit: Fiber Type

Second digit: Alignment direction

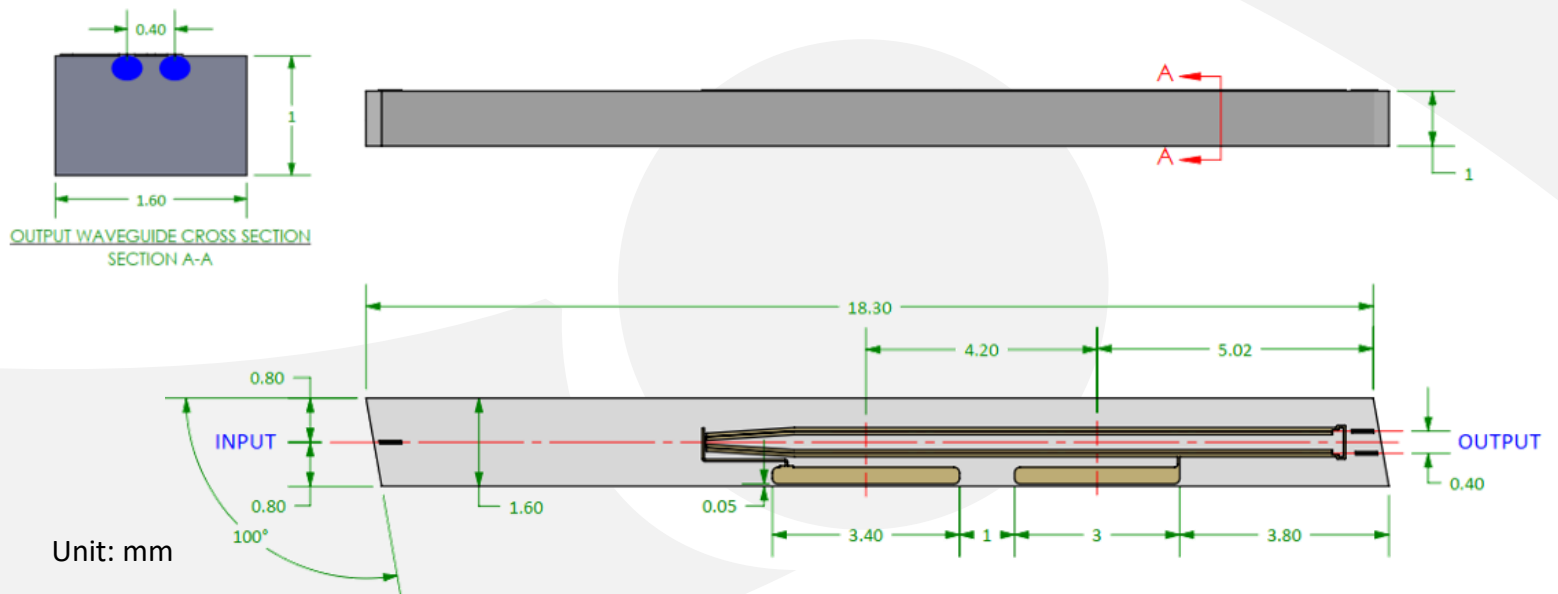
Fiber Type Option:

- 0: No fiber pigtail
- 1: Corning RCPM15, 80/165 μm
- 2: Corning PM15-U25D, 125/250 μm

Fiber Alignment Direction Option:

- 0: Not applicable
- 1: Slow axis aligned to TE mode
- 2: Fast axis aligned to TE mode
- 3: 45° alignment

MECHANICAL DRAWING



Unit: mm

