

High Power BPON Triplexer Assembly

PLDM574

Features

- *Integrated WDM filters for operation at 1310/1490/1550 nm*
- *High power output of 1310 nm transmitter with uncooled FP LD suitable for data rates up to 622Mb/s*
- *Single mode fiber pigtailed with*
- *SC/APC connector*
- *Low optical crosstalk*
- *-20°C ~ +70°C operating temperature range*
- *Hermetically sealed Tx & Rx sub-components for high reliability*

Application

- *FTTx networks over BPON*

Description

Triplexer is a hybrid optical assembly with three optical ports for bi-direction transmission. It's a basic component for the FTTH system, which can transmit CATV and voice/data at the same time on a single fiber. 1.31um wavelength light is used for transmitting the signals from user's homes to a central office. On the other hand, analog(graphic/video) and digital(voice/data) signals are transmitted from the central office to the user's homes with 1.55um and 1.49um light respectively.

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Absolute Maximum Ratings

| Parameter | Symbol | Unit | Min | Max |
|-----------------------------|--------|------|------|------|
| Storage Temperature Range | Ts | °C | -40 | 85 |
| Relative Humidity | RH | % | - | 95 |
| Power Supply Voltage | Vcc | | 3.05 | 3.55 |
| Lead solder temperature | - | °C | - | 260 |
| Lead solder duration | - | S | - | 10 |
| Fiber yield strength | - | kgf | - | 1 |
| Fiber bend radius | - | mm | 30 | - |
| Laser Diode Reverse Voltage | VRL | V | - | 2 |
| Laser Diode Forward Current | IFL | mA | - | 100 |
| MPD Reverse Voltage | VRM | V | - | 15 |
| MPD Forward Current | IFM | mA | - | 2 |
| PIN Reverse Voltage | VRP | V | - | 10 |
| PIN Forward Current | IFP | mA | - | 2 |

Recommended Operating Conditions

| Parameter | Symbol | Unit | Min | Typ | Max |
|----------------------------------|--------|------|------|-----|------|
| Case Operating Temperature Range | Tc | °C | -20 | - | 70 |
| Power Supply Voltage | Vcc | | 3.05 | 3.3 | 3.55 |
| Relative Humidity | RH | % | - | - | 95 |

Specifications (T=25°C, unless otherwise noted)

| Parameter | Symbol | Unit | Min | Typ | Max | Test condition |
|--|-----------------|------|------|------|------|-----------------------|
| Transmitter: LD & MPD Electro-Optical Characteristics | | | | | | |
| Wavelength range | λ_p | nm | 1280 | 1310 | 1340 | CW |
| Threshold Current | I _{th} | mA | | 9 | 15 | CW |
| Optical Output Power | P _o | mW | 1 | 1.5 | | I _{th} +20mA |
| Spectral Width | $\Delta\lambda$ | nm | | | 4 | RMS |
| Operating Voltage | V _{op} | V | | 1.1 | 1.6 | I _{th} +20mA |
| Monitor Current | I _m | μA | 150 | | 1500 | I _{th} +20mA |
| Monitor Dark Current | I _d | nA | | | 10 | -5V |
| Rise/Fall Time | Tr/f | ns | | | 0.5 | 10%~90% |
| Tracking Error | ΔPf | dB | -1.5 | | 1.5 | -20~70 °C |
| Receiver: Analog PIN photodiode Electro-Optical Characteristics | | | | | | |
| Wavelength range | λ_p | nm | 1550 | 1555 | 1560 | CW |
| Responsivity | R | A/W | 0.7 | 0.75 | | @1550nm |
| Frequency Range | f | MHz | 40 | | 880 | |
| Dark Current | I _d | nA | | | 5 | -15V |

| | | | |
|--------------------------------------|-----|-----|-----|
| 2nd Order Intermodulation Distortion | IM2 | dBc | -66 |
| 3rd Order Intermodulation Distortion | IM3 | dBc | -72 |

Receiver: Digital PIN-TIA Electro-Optical Characteristics

| | | | | | | |
|--------------------------|-------------|-----|------|------|--|-----|
| Wavelength range | λ p | nm | 1480 | 1490 | 1500 | CW |
| Optical Sensitivity | S | dBm | -30 | -28 | 622Mb/s, Full Duplex, BER \leq 10 ⁻¹⁰ | |
| Saturating Input Power | Psat | dBm | -5 | | | |
| Output Voltage(+3.3V) | Vcc | V | 3.05 | 3.3 | 3.55 | |
| 1310/1550nm Isolation ** | ISO1 | dB | | | | -30 |
| 1310/1490nm Isolation | ISO2 | dB | | | | -30 |
| 1490/1550nm Isolation | ISO2-1 | dB | | | | -30 |
| 1550/1490nm Isolation | ISO1-2 | dB | | | | -30 |
| 1310/1550nm Crosstalk | Crt1 | dB | | | | -47 |
| 1310/1490nm Crosstalk | Crt2 | dB | | | | -47 |

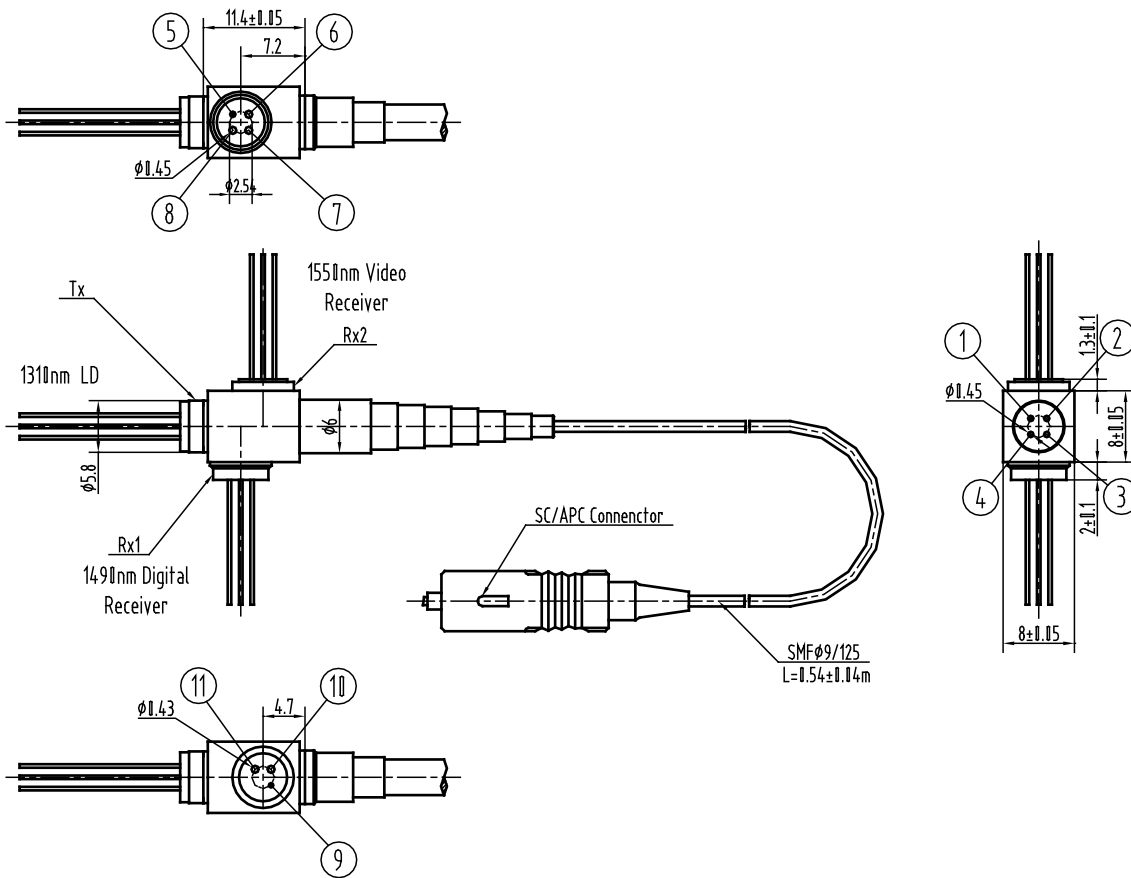
****Isolation & crosstalk:** $\lambda a/\lambda b$: λa is the input wavelength, λb is the wavelength of the concerned receiver

OTHER SPECIFICATIONS ON REQUEST

Pin Description

| Pin | Description | Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|-----|-------------|
| 1 | CASE | 5 | GND | 9 | CASE |
| 2 | LD- | 6 | Vcc | 10 | PD+ |
| 3 | MPD+ | 7 | Dout- | 11 | PD- |
| 4 | LD+/MPD- | 8 | Dout+ | 12 | |

Package Outline



Ordering Information

| Part No. | Specification | | | | | | | | | |
|----------|---------------|-----------|--------|---------------|-----------------|-------------|------------------|-------------|----------|--------|
| | Package | Data rate | Laser | Optical Power | Analog Detector | Responsvity | Digital Detector | Sensitivity | Temp | Others |
| PLDM574 | Triplexer | 622Mb/s | 1310nm | 0dBm | 1550nm | 0.7A/W(min) | 1490nm | -28dBm(max) | -20~70°C | |

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Edition 2009-12-01

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