

OPTOELECTRONIC COMPONENTS

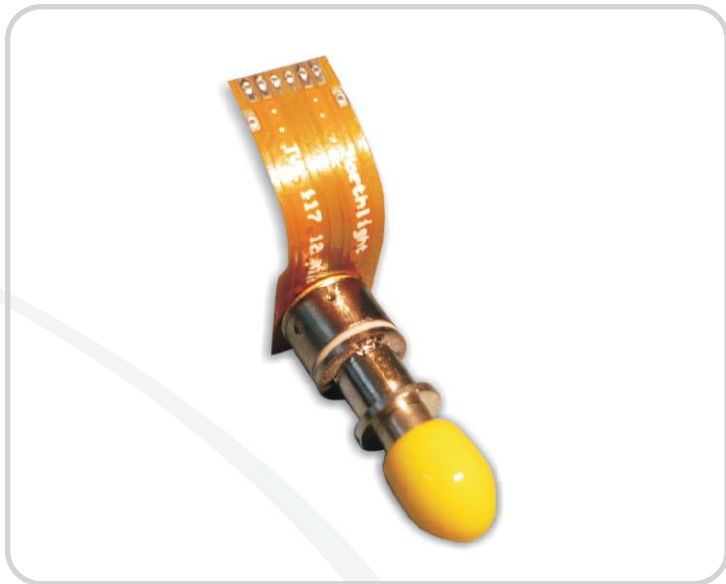
XMD-compatible 10G ROSA with PIN detector and TIA



Opterna's NORTHLIGHT SERIES optoelectronic sub-components are renowned for its quality and have been proven through decades of optical module and semiconductor device design and manufacturing.

The ROSA meets the requirements of the XMD MSA. It consists of a PIN photodiode detector mounted in a hermetic coaxial package, which also includes an integrated low noise trans-impedance amplifier. The receiver comes with an LC receptacle and is equipped with a flexible printed circuit (FPC) for electrical interconnections.

The products are designed and manufactured to meet the requirements stated in applicable Telcordia standards.



Features & Advantages

- ❑ XMD ROSA Type 1
- ❑ InGaAs pin photodiode with 3.3V low noise pre-amplifier
- ❑ Up to 12.5Gbps data rate
- ❑ Typical sensitivity: -20dBm
- ❑ Typical overload: +2dBm
- ❑ 12kVA differential gain
- ❑ 1260 to 1620nm wavelengths
- ❑ LC receptacle
- ❑ FPC electrical interconnect

Applications

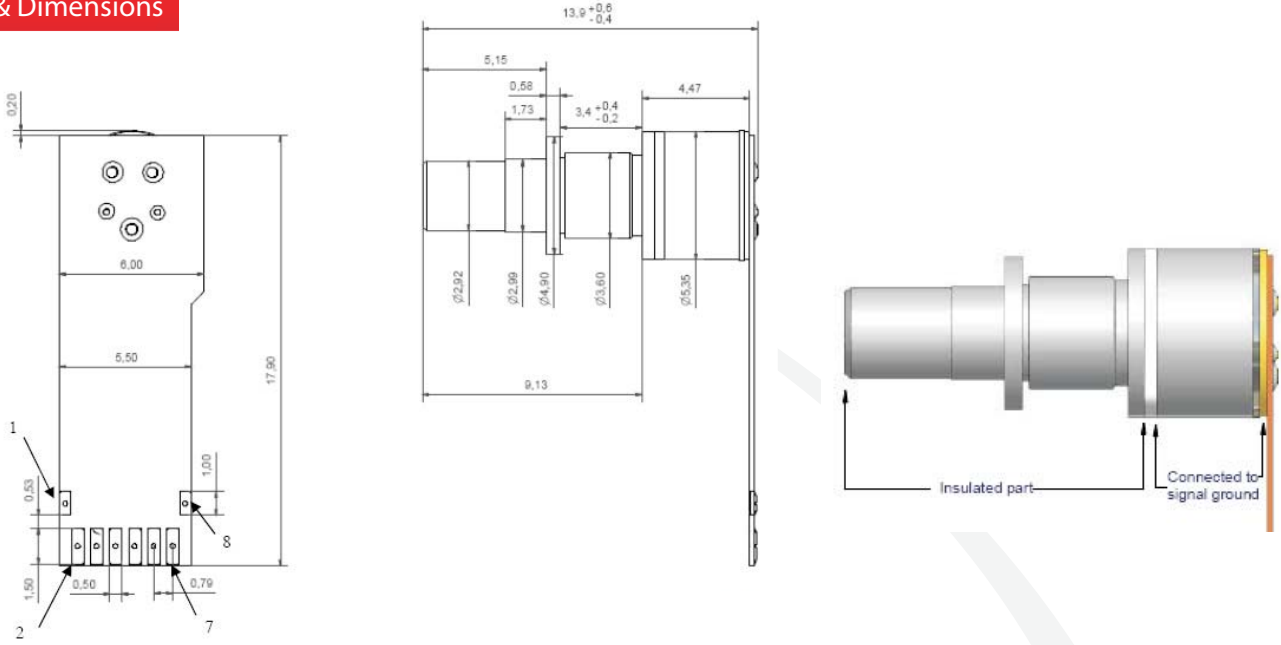
- ❑ Transceivers and transponders for high speed data and telecom applications
- ❑ Short haul SDH STM-64
- ❑ Short and intermediate reach SONET OC-192
- ❑ 10 GbE

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Size & Dimensions



All dimensions in mm

Specifications

MAXIMUM RATINGS

| Parameter | Unit | Min | Max |
|----------------------------|------|-----|-----|
| Pre-amplifier power supply | V | | 4 |
| Photodiode average current | mA | | 2 |
| Storage temperature | C | -40 | 85 |
| ESD, HBM | V | | 200 |

OPERATING CONDITIONS

| Parameter | Unit | Min | Typ. | Max |
|----------------------------|------|--------|------|------|
| Pre-amplifier power supply | V | 3.15 | 3.3 | 3.45 |
| Photodiode bias | V | 3.15 * | 5 | 12 |
| Wavelength | nm | 1260 | | 1620 |
| Case temperature | C | -5 | | 80 |

* For optimum performance use > 4.5 V

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OPTICAL CHARACTERISTICS

At operating conditions:

| Parameter | Conditions | Unit | Min | Typ. | Max |
|---------------------|-------------------------|------|-----|------|-----|
| Responsivity | | A/W | | 0.8 | |
| Sensitivity | BER 10 ⁻¹² * | dBm | | -20 | -17 |
| Overload | BER 10 ⁻¹² * | dBm | 0 | 2 | |
| Optical return loss | | dB | 27 | | |

* 9.95328 Gbps NRZ, PRBS 2³¹-1, λ=1,55μm, ER~10dB

ELECTRICAL CHARACTERISTICS

At operating conditions:

| Parameter | Conditions | Unit | Min | Typ | Max |
|--|----------------------|------|------|------|------|
| Bandwidth, S ₂₁ | -3 dB | GHz | 7 | 9 | |
| Low frequency cut-off | -3 dB | kHz | | | 50 |
| AC trans-impedance | Single-ended | V/A | 5200 | 6000 | 6800 |
| Output swing | Single-ended | mVpp | | | 350 |
| Electrical reflection, S ₂₂ | Differential < 8 GHz | dB | | -10 | |
| Power dissipation | | mW | | 100 | 150 |

ELECTRICAL CONNECTIONS

The data outputs are differential and need to be externally AC-coupled.

| Pad | Description |
|-----|----------------------------|
| 1 | Signal ground |
| 2 | Pre-amplifier power supply |
| 3 | Signal ground |
| 4 | Data |
| 5 | Data_not |
| 6 | Signal ground |
| 7 | Photo diode bias |
| 8 | Signal ground |

HANDLING INFORMATION

- ☒ The product contains electrostatic sensitive components. Appropriate precaution must be taken when handling to avoid ESD damage.
- ☒ Product contains hazardous GaAs compounds and must be disposed of with care.

Ordering information

XMD PIN ROSA with receptacle

| Part number | Description |
|---------------|---|
| PGR20401/01R1 | 10G PIN ROSA with LC receptacle isolated from signal ground |
| PGR20401/03R1 | 10G PIN ROSA with LC receptacle non-isolated from signal ground |