

OPTOELECTRONIC COMPONENTS



Pigtailed 10G Coaxial ROSA with InGaAs APD & low noise pre-amplifier

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 receiver consists of an APD detector mounted in a hermetic coaxial package, which also includes an integrated low noise trans-impedance amplifier. The receiver is offered with two different electrical interconnection options; 7-pin with coplanar output leads or XMD MSA compatible flexible printed circuit (FPC) equipped with a thermistor, and is supplied with a connectorized single-mode fiber pigtail. The APD detector is biased externally. The electrical output is differential and DC-coupled.

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



Features & Advantage

- ❑ Small size coaxial package
- ❑ InGaAs PIN photodiode with 3.3V low noise pre-amplifier
- ❑ Differential data output
- ❑ Typical sensitivity: -27dBm
- ❑ Typical overload: -1dBm
- ❑ 12kVA differential gain
- ❑ 1260 to 1620nm wavelengths
- ❑ Singlemode fiber pigtail
- ❑ 7-pin with coplanar outputs or XMD MSA compatible FPC with 10kohm thermistor

Applications

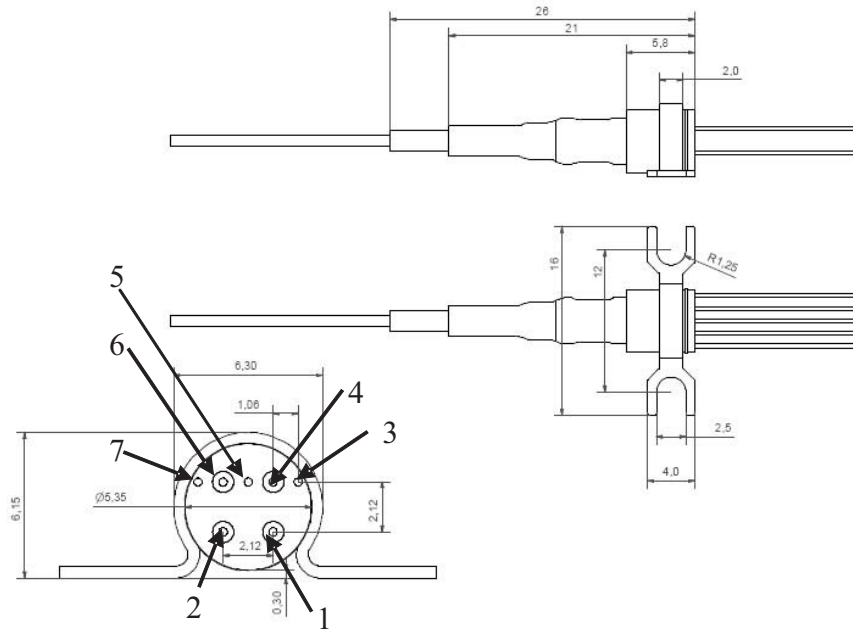
- ❑ Cost reduction of existing board designs and 300-pin transponders
- ❑ Short haul SDH STM-64
- ❑ Long reach SONET OC-192

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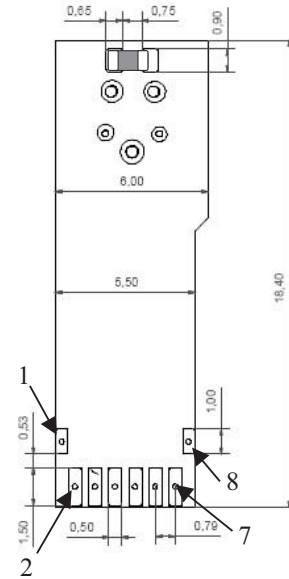


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Size & Dimensions



[7-pin configuration]



[XMD compatible FPC configuration]

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	20		40
Photodiode bias temperature coefficient	mV/C	30	50	70
Wavelength	nm	1260		1620
Case temperature	C	-5		75

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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		-27	-24
Overload	BER 10 ⁻¹² *	dBm	-5	-1	
Optical return loss		dB	27		

* 10Gbps NRZ, PRBS 2³¹-1, λ=1.55um, ER~10dB

ELECTRICAL CHARACTERISTICS

At operating conditions:

Parameter	Conditions	Unit	Min	Typ	Max
Bandwidth, S ₂₁	-3 dB	GHz	6	8	
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
Thermistor resistance	25 ^o C	kΩ	9.5	10	10.5
Thermistor B value		K	3800	3900	4000
NB: Placed on FPC					

ELECTRICAL CONNECTIONS

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

7-pin configuration

Pad	Description
1	Pre-amplifier power supply
2	Photo diode bias
3	RF ground/Case ground
4	Data
5	RF ground/Case ground
6	Data_not
7	RF ground/ Case ground

XMD compatible FPC configuration

Pad	Thermistor
1	Thermistor
2	Pre-amplifier power supply
3	Signal ground
4	Data
5	Data_not
6	Signal ground
7	Not connected
8	Photo diode bias

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.

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InGaAs APD & low noise pre-amplifier



Ordering Information

Pigtailed 10G APD ROSA for horizontal board mount

Part number	Description
PGR20419/B7HcR2	10G APD ROSA with 7-pins and coplanar differential output
PGR20419/B5KcR2	10G APD ROSA with XMD compatible flexible printed circuit (FPC)
Code	Option
c = 1	LC connector option
= 2	SC connector option
= 3	ST connector option