

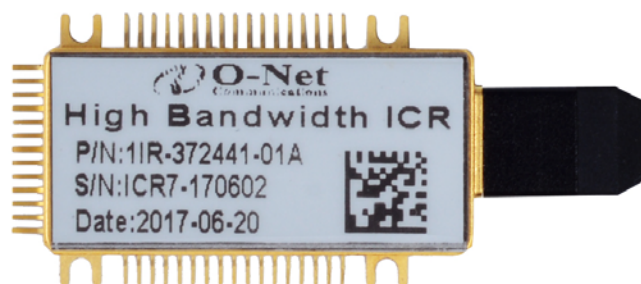
400 Gbps High-bandwidth ICR

Features

- Fully-integrated coherent receiver
- OIF-DPC-MRX compliant
- Data rate up to 64 Gbd
- Auto gain control amplifier
- VOA and MPD optional

Applications

- DWDM Metro and long-haul systems
- Coherent 400G 16-QAM applications
- Submarine long-haul transmission
- Intradyne and homodyne coherent detection



Main Specifications

1. Description

The integrated high-bandwidth micro intradyne coherent receiver initially targets coherent 400G 16-QAM applications with nominal symbol rates up to 64 GBd. O-Net Communication's high-bandwidth Micro-ICR integrates signal and local oscillator polarization splitters, linear TIAs with manual and automatic gain control, two matched 90° optical hybrids, and four high-speed balanced detector pairs in a single compact surface-mount package. Variable optical attenuator (VOA) and monitor photodiode (MPD) are offered optionally.



2.Functional Diagram

The functional building blocks with the Micro-ICR are illustrated as below in Figure 1..

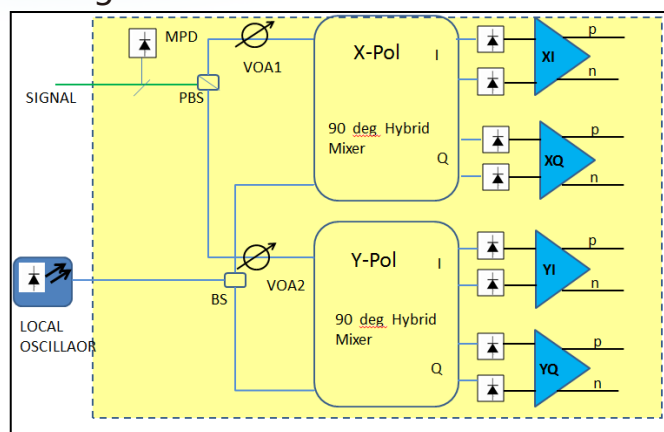


Figure 1: Functional diagram of a dual polarization HB integrated coherent receiver.

3.Environmental Conditions

Parameter	Unit	Max	Min
Operating Temperature Range	°C	80	-5
Storage Temperature Range	°C	85	-40
Storage Relative Humidity Range	%RH	95	5
Operating Temperature Range	°C	80	-5

4.Operating Characteristics

Parameter	Unit	Max	Typical	Min	Note
Symbol Rate	GBd		64		
Operating Frequency/C-Band	THz	196.2		191.35	
Amplifier Supply Voltage	V	3.47	3.3	3.14	
Photodiode Bias Voltage	V	3.465	3.3	3.135	
Monitor Photodiode Bias Voltage	V	3.465	3.3	3.135	Option 3.0
		5.25	5	4.75	Option 5.0
VOA Control Voltage	V	5		0	1
Operating Temperature	°C	75		-5	2
		80		-5	
Operating Humidity	%RH	85		5	

Note:

1. Dark VOA is used.
2. The operating temperature is defined as the minimum/maximum of the case "hot zone" surface temperature.

5. Optical/Electronic Specifications

Parameter		Unit	Max	Typical	Min
Operating Signal Power		dBm	0	-10	-18
Local Oscillator Power		dBm	16		
Maximum Differential Output Swing		mV _{p-p}			700
Minimum Differential Output Swing		mV _{p-p}	300		
Common Mode Rejection Ratio (CMRR _{DC})	Sig to I&Q	dBe	-20		
	LO to I&Q		-16		
Common Mode Rejection Ratio (CMRR _{RF})	Sig to I&Q	dBe	-16		
	LO to I&Q		-14		
Low Frequency Cut-Off		MHz	1		
Phase Error		°	+7.5		-7.5
Optical Reflectance		dB	-27		
Skew Between Complimentary Signals Within a Channel (informative)		ps	1		-1
Channel Skew		ps	50		
X/Y Skew Variation		ps	3		
I/Q Skew Variation		ps	1		

6. Optical/Electronic Specifications

Parameter	Unit	Max	Typical	Min	Note
Maximum Gain Control Bandwidth	MHz		5		1
Signal MPD Responsivity	A/W		0.05		
Signal MPD to LO Input Optical Isolation	dB		40		
VOA Attenuation Range	dB			10	



1. Settable via external control; measured by applying step at gain control node such that output changes by 5%. BW is estimated by $0.22/T_r$, where T_r is 20-80% rise/fall of the output envelope step.

[illegible]

Fiber Boot and Optical Fiber Input Requirements

Parameter		Specification	Unit	Comment
Signal	Fiber Length	> 1100	mm	
	Fiber Color			Based on customer
	Fiber Diameter	900 / 400 / 250	um	Based on customer
	Optical Connector			Based on customer
	Fiber Bend Radius	15	mm	
Local	Fiber Length	> 1100	mm	
	Lo Fiber Color			Based on customer
	Fiber Diameter	400/250	um	Based on customer
	Optical Connector			Based on customer
	Fiber Bend Radius	15	mm	

Order Information

- The above specifications represent the typical performance of an O-Net 400 Gbps High-bandwidth ICR of this category.
- Please contact our Sales to discuss your specific requirements.