PTHS992-003 10Gb/s Coplanar Surface-Mount PIN-TIA Receiver

Features

- Up to 10.7Gb/s data-rate capability
- Surface mount MSA compliant
- –19dBm typical sensitivity
- 3dBm typical overload
- Low capacitance high speed InGaAs PIN with pre-amplifier
- 4kΩ differential electrical gain
- Telcordia Technologies 468 compliant
- 0.18W typical power

Applications

- VSR,SR and IR applications up to 10.7Gb/s.
- SONET and 10Gb/s Ethernet transponders
- Other application

Description

The PTHS992-003 receiver integrates a 10Gb/s PIN and a low noise preamplifier，a connectorized single-mode fibre pigtail and hermetic metal package with coplanar output，Optimized for VSR、SR，and IR applications，most notably，high gain，3.3V power supply，and low power consumption.

Absolute Maximum Ratings

Parameter	Symbol	Unit	Min	Max
Storage Temperature Range	T_S	°C	-40	85
Photodiode Bias Voltage	V_{PD}		-0.5	20
TIA Supply Voltage	V_{CC}		-0.5	4
Optical Input Power	P_{in}	dBm	-	6
Lead solder temperature	-	°C	-	260
Lead solder duration	-	S	-	20
Fiber yield strength	-	kgf	-	1
Fiber bend radius	-	mm	30	-
ESD-susceptibility,all pin[1]	-	V	-	500

Note1: Based on human-body model of R=1500Ω and C=100pf, In general, ESD precautions should be taken to avoid damage to device.

Recommended Operating Conditions

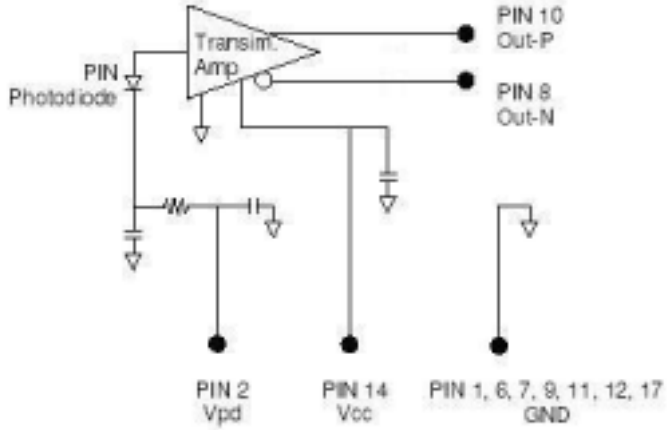
Parameter	Symbol	Unit	Min	Typ	Max
Case Operating Temperature Range	T_c	°C	-5	25	75
Power Supply Voltage	V_{cc}	V	3.1	3.3	3.5
Photodiode Bias Voltage	V_{PD}	V	4.0	5	12
Optical wavelength	λ	nm	1280	1550	1610

Specifications (tested under recommended operating conditions ,unless otherwise noted)

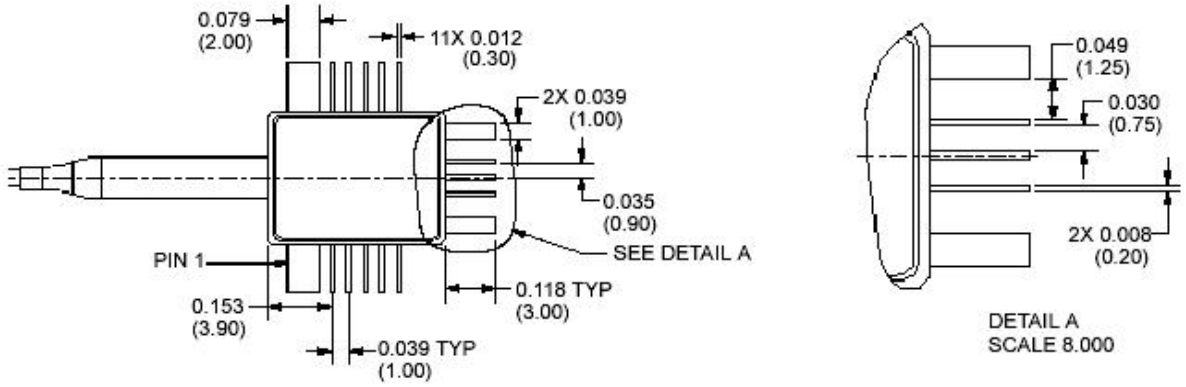
Parameter	Symbol	Unit	Min	Typ	Max	Test condition	
Electrical Characteristics							
-3dB Bandwidth	BW	GHz	7.5	8.5		P_{IN}=-20dBm, from 130MHz	
Low Frequency Cut-off	f_{Low}	kHz		24	52		
Transimpedance	Zt	Ω		2000	-	Single-ended, p-p, f=100MHz	
Max. Output Swing	Voutp-Voutn	mVp-p	-	330	-	For I_{IN} > 0.1mAp-p	
Output Impedance	Ro	Ω	-	50	-	Single-ended	
TIA Supply Current	Icc	mA	43	55	73	No loads	
Optical Characteristics							
Optical Return Loss	ORL	dBm	35				
Overload	Ps	dBm	0	1	-		NRZ, ER=10dB, 9.95328Gb/s,PRBS 2^{31}-1, BER=10^{-12}
Sensitivity	S	dBm	-18	-19		25℃	
			-17	-18		75℃	
Responsivity	R	A/W	0.8	0.9		λ=1550nm	
…							

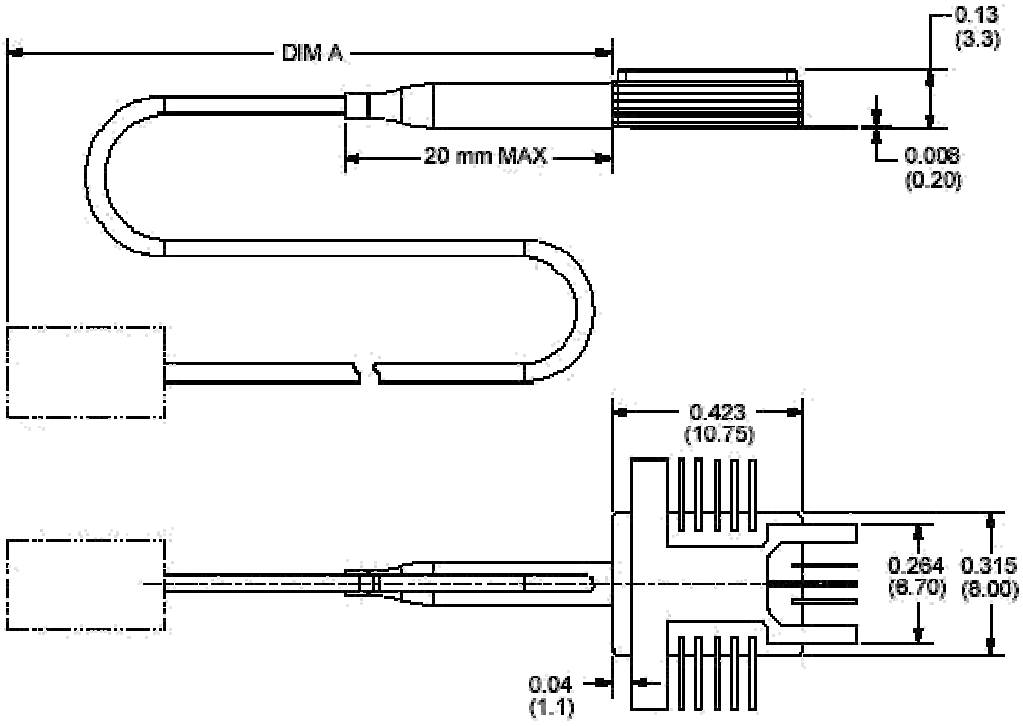
Pin Description

Pin	Symbol	Description		Pin	Symbol	Description
1	GND	Case ground		10	OUT_P	Data output
2	V_{PD}	Photodiode Bias		11	GND	Case ground
3	NC	No Connection		12	GND	Case ground
4	NC	No Connection		13	NC	No Connection
5	NC	No Connection		14	V_{CC}	TIA Bias(3.3V)
6	GND	Case ground		15	NC	No Connection
7	GND	Case ground		16	NC	No Connection
8	OUT_N	$\overline{\text{Data}}$ output		17	GND	Case ground
9	GND	Case ground				



Package Outline





Characteristic Curves

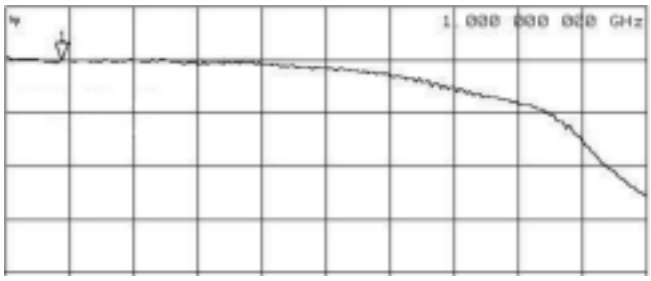


Figure 1. S21: 0.13GHz to 10GHz,3dB/div

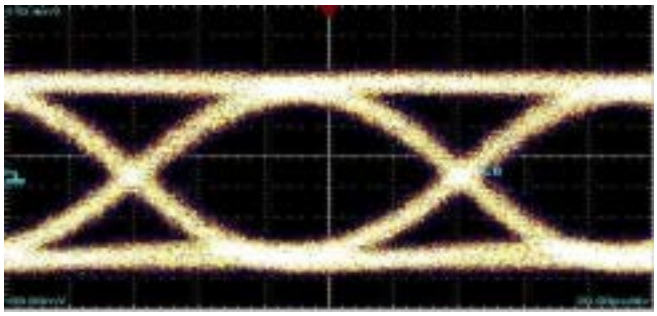


Figure 2. Eye pattern: P_{IN}=-17dBm, 9.953Gb/s, 2^{31}-1PRBS

Regulatory Compliance

Feature	Test method	Performance
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883E Method 3015.7	
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Ordering Information

Part No	Specification							
	Package	Datarate	Laser	Optical Power	Detector	Sensitivity	Temp	Others
PTHS992-003	17pin MSA pkg	10G	-	-	PIN+TIA	-19dBm	-5-75℃	+3.3V ;Return Loss >35dB

Consultation

Product Purchasing

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