

5800 Uplander Way
Culver City, CA 90230
Tel (310) 642-7975
sales@apichip.com

20 GHz High-Power, Enhanced Linearity Tabletop Optical Receiver

Part # ARx20-TT-14-N-T-DC

PRODUCT FEATURES

- Ultra High responsivity
- High optical power handling
- High linearity
- Very low phase noise
- Convenient housing for ease of use
- Photocurrent display
- Inbuilt rechargeable battery with 2000mA/h rating



APPLICATIONS

- RF over fiber interconnects requiring high gain, high dynamic range and low noise figure
- Microwave generation with ultra short optical pulses
- Tabletop lab operation

DESCRIPTION

The analog receiver uses a packaged, waveguide coupled, InGaAs photodiode (PD) that is designed for high input optical power and maximum output current linearity. The device is optimized to work in RF over fiber links that require high dynamic range, low noise figure and high RF gain. The internal components are soldered and laser welded, ensuring maximum reliability and performance stability with ambient temperature variation. A thermo electric cooler (TEC) is optional and can be integrated to extend the receiver optical power handling, linearity and further decrease noise. To ensure maximum RF gain the receiver can be packaged with no internal 50 Ohm termination and DC coupled output. The tabletop unit comes with a bias current monitor, battery operation for ultra low noise, an internal biasT, and SMA output. A 12V charger for the internal battery is included. This is a turnkey device, very easy to use and perfect for research or lab environments.

ORDERING INFORMATION

ARx20-TT-50-N-T-DC

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Minimum	Maximum	Units	Condition/Comments
Photodiode Reverse Voltage	V_{pd}	-0.5	25	V	No light operation
Average Optical Input Power	P_{opt}		18	dBm	

ELECTRO-OPTICAL SPECIFICATIONS

Parameter	Symbol	Min.	Typ.	Max.	Units	Condition/Comments
Wavelength range	λ	1480		1580	nm	
Responsivity	R	0.85	0.9		A/W	
Polarization Dependent Sensitivity (PDS)	PDL		0.1	0.2	dB	Variation in detected signal over all polarization states
RF bandwidth	F_{3dB}	20	21		GHz	3 dB point measured
Dark current	I_{dark}		10	50	nA	At 25 degrees C ambient
PD reverse bias	V_{PD}	-2	-4	-8	V	Internal set voltage of -4V
Optical saturation power	P_{sat}	17			dBm	1 dB compression point when biased at -4V
Optical Return Loss	ORL	-27	-30		dB	
RF Output Termination	R_{term}		NA		Ω	The device is not internally terminated. The external bias T sets the RF termination impedance.

MECHANICAL SPECIFICATIONS

Parameter	Symbol	Minimum	Maximum	Units	Condition/Comments
Height	H		30.43	mm	
Area	A		131x125	mm ²	
High Speed Electrical Connector					SMA
Package Heat Flow					Heat sink on bottom surface
Pigtail Termination					FC/APC SMF28
Electrical Connection					5.5mmx2.1mm center positive 12V, .1A

ENVIRONMENTAL SPECIFICATIONS (preliminary, qualification in progress)

Parameter	Minimum	Maximum	Units	Condition/Comments
Operating Temperature	0	+70	°C	Case temperature
Storage Temperature	-55	+95	°C	
Operating Humidity	0	90	% RH	

MECHANICAL DRAWING

NOTES:
1. ALL DIMENSIONS IN MM

