

Product Specification

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20/40 GHz High Power, High Linearity Optical Receiver Module

Part #TTARX20-50-zz-FC (20 GHz)
 TTARX40-25-zz-FC (40 GHz)

PRODUCT FEATURES

- High performance ARX20/40 photodetector in a convenient tabletop package
- Ultra-high responsivity
- Very high optical power handling capability—over 50 mA saturation current with high linearity (20 GHz version)
- Laser welded and hermetically sealed photodetector package
- Internal battery (rechargeable) or external power operation



APPLICATIONS

- RF over fiber interconnects requiring high gain, high dynamic range, and low noise figure
- Laboratory or system test laboratory RF over fiber links
- Multi-level modulation communication receivers

DESCRIPTION

This product is a tabletop module using the ARX20/40 series photodetector (PD) with an integrated bias power source and bias current monitor display on the front panel. An internal rechargeable battery provides a stable bias for the PD. The InGaAs PD uses a proprietary chip design that is optimized for high input optical power and output current linearity. The receiver is designed for use with a low relative intensity noise (RIN) optical transmitter to implement high performance RF over fiber links. The PD is packaged in a hermetically sealed package using soldering and laser welding for reliability and durability. Optical signal input and RF output are through their respective front panel connectors.

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Typical	Maximum	Units	Condition/Comments
Power Source	V_{Pwr}	12		V	DC (AC Adapter Supplied)
Maximum Optical Input Power	P_{max}		50	mW	Internal bias; 20 GHz version
			25	mW	Internal bias; 40 GHz version
ESD	V_{ESD}		±250	V	

ELECTRO-OPTICAL SPECIFICATIONS

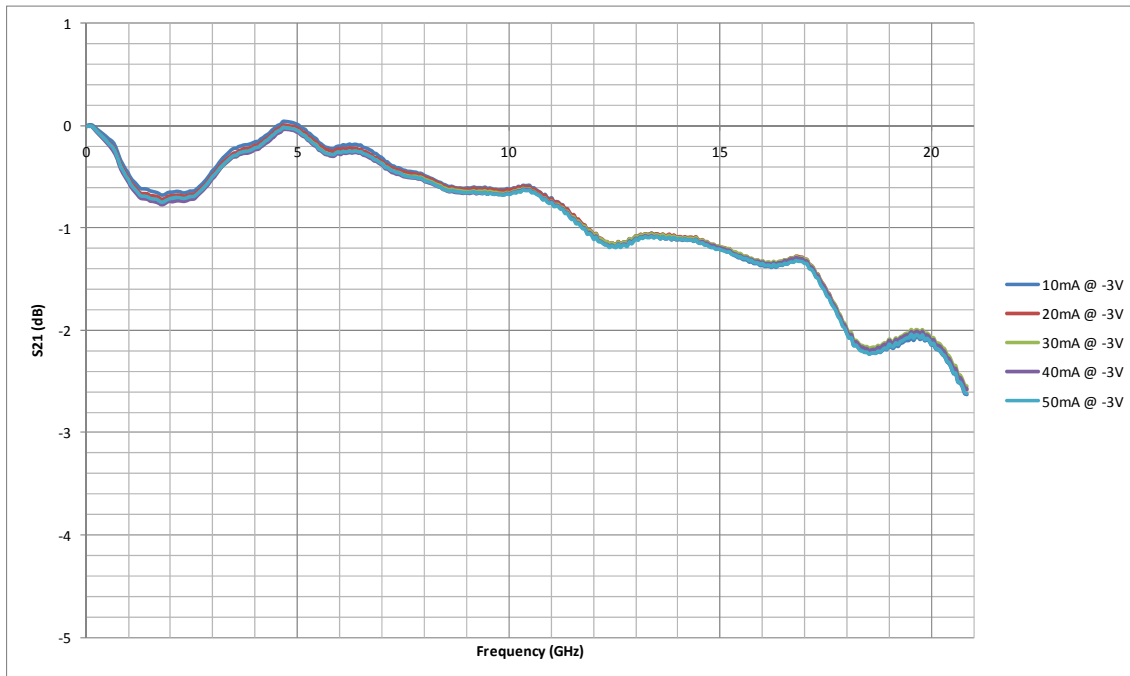
Parameter	Symbol	Min.	Typ.	Max.	Units	Condition/Comments
Wavelength range	λ	1,530		1,620	nm	
Responsivity	R	0.7	0.8		A/W	For 20 GHz version
		0.55	0.65			For 40 GHz version
Polarization Dependent Sensitivity (PDS)	PDS		0.2	0.3	dB	Variation in detected signal over all polarization states
RF Bandwidth (3 dB point)	$F_{3\text{ dB}}$	15	20		GHz	20 GHz version
		35	40			40 GHz version
Dark Current (at 25°C ambient)	I_{dark}		5	200	nA	20 GHz version
			5	200		40 GHz version
PD Bias	V_{PD}	3	3.6	5	V	Internally set
Optical Saturation Power (1 dB compression)	P_{sat}		17		dBm	20 GHz version
			14			40 GHz version
Optical Return Loss	ORL	-27	-30		dB	
Output Reflection Coefficient	S_{22}	-10	-15		dB	Over Full Frequency Range
RF Output Termination			50		Ω	

MECHANICAL SPECIFICATIONS

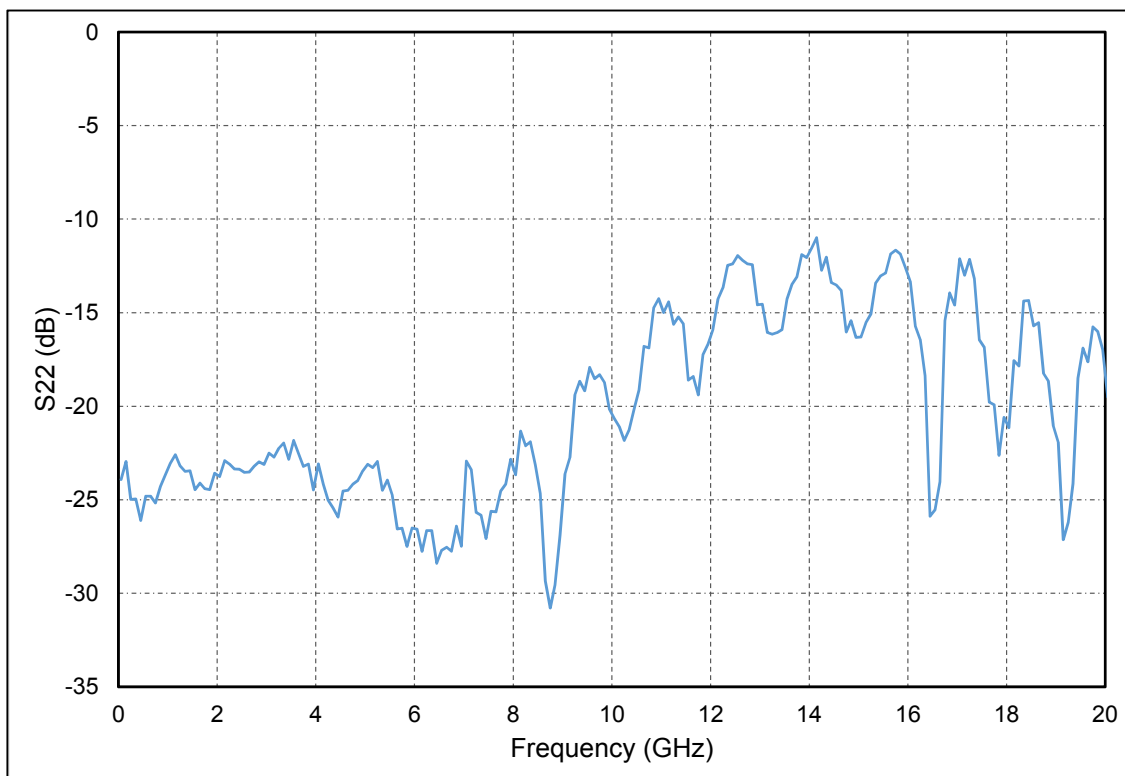
Parameter	Symbol	Minimum	Maximum	Units	Condition/Comments
Height	H		32	mm	
Area	A		171 x 105	mm ²	
RF Connector					2.92 mm K (F) on front panel
Packaging					Hermetic for PD module only
Package Heat Flow					Heat sink for PD through bottom surface of case
Fiber Connection					FC/APC connector on front panel; (others by special order)

TYPICAL MEASURED PERFORMANCE (20 GHz VERSION)

Bandwidth versus Photocurrent (S21)

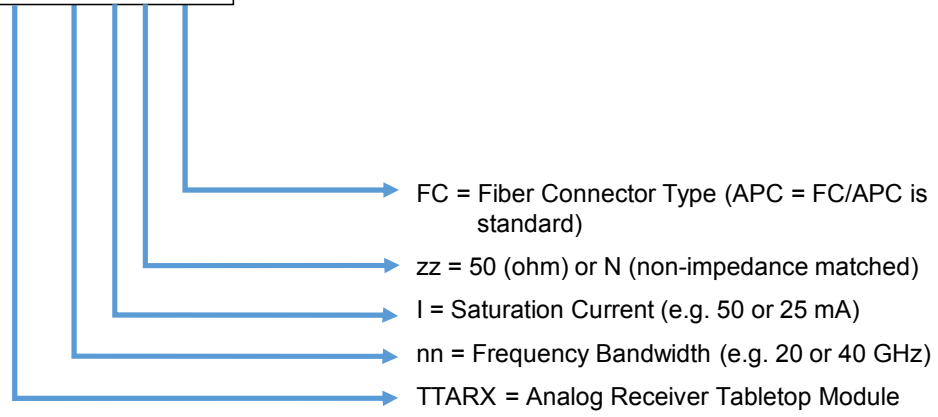


Back-Reflection from Electrical RF Output (S22)



ORDERING INFORMATION

TTARXnn-I-zz-FC



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