

RF Over Fiber Analog/Digital Link 6GHz

(5MHz to 6GHz)

SANLAND

DATASHEET



Features

- Up to 6GHz
- SM28 Fiber
- Low Loss
- Low Cost
- Stable

Applications

- GSM Repeater
- CDMA Repeater
- WCDMA Repeater
- PHS Repeater
- Digital TV Repeater
- Broadcast Repeater

The RF over Fiber (RFOF) system is designed to create a high-performance RF link between two locations using fiber optic cables. It offers strong immunity to electromagnetic interference, wide bandwidth, low signal loss over long distances, minimal distortion, low power consumption, and high reliability, all in a simple, easy-to-deploy format. The system operates by converting an input RF signal into an optical signal using a high-linearity DFB laser transmitter, and then reconverts it back into an RF signal at the receiver end using a high-linearity photodiode integrated with a low-noise amplifier. This transmitter-receiver pair forms a transparent RF fiber link. RFOF units are available in 1310 nm and 1550 nm wavelength,

Engineered for outstanding signal fidelity across the full 5 MHz to 6 GHz band, the link maintains a flat frequency response of ± 3 dB with low noise figure and a high spurious-free dynamic range (SFDR up to 104 dB-Hz^{2/3}). Its high-linearity transmitter and receiver chain achieves an input P1dB of -10 dBm and input third-order intercept (IIP3) up to +33 dBm, preserving the integrity of complex wideband modulated signals without intermodulation distortion. Housed in a compact 64 × 39 × 12 mm package with industry-standard SMA RF and FC/APC optical interfaces, the module draws only 3 W and operates reliably over an ambient temperature range of -20 °C to +50 °C, making it equally suitable for bench-top instrumentation, rugged outdoor remote sites, and rapid system integration.

Typical applications include telecommunications, satellite ground stations, radio telescopes, distributed antenna systems, broadcast audio/video transport, and timing synchronization. Use cases include point-to-point RF transmission over distances ranging from meters to many kilometers, remote antenna connectivity for base stations, and satellite antenna extensions to remote facilities.

Specifications

Parameter	Min	Typical	Max	Unit
Optical Wavelength	1310 ± 20		1550 ± 20	
Transmitter Output Power	0	3		mW
Optical Input Power	-15		+2	dBm
Receiver Sensitivity			-20	dBm
RF Frequency Range	5 MHz		6 GHz	
Gain Flatness (p-p)			± 3	dB
RF Output Power	-15		5	dBm
Input P1 dB		-10		dBm
RF Input Power	-35		-15	dBm
Spurious Free Dynamic Range(SFDR)	90		104	dB-Hz ^{2/3}
Noise Figure	16		30	dB
Input/Output VSWR		2:1		
Input Third Order Intercept (IIP3)		33		dBm
Link Gain		20		dB
L*W*H		64* 39* 12		mm
Fiber Type		SM28		
Fiber Connector Type		FC/APC		
RF Impedance		50		Ω
RF Connector		SMA		
Power Consumption	3			W
Weight	0.5			kg
Operating Temperature	-20		50	°C
Storage Temperature	-45		85	°C
Power Supply Voltage	4.8	5	5.2	V
Power Supply Current		160		mA



+86-755-28968333



info@sanlandtech.com



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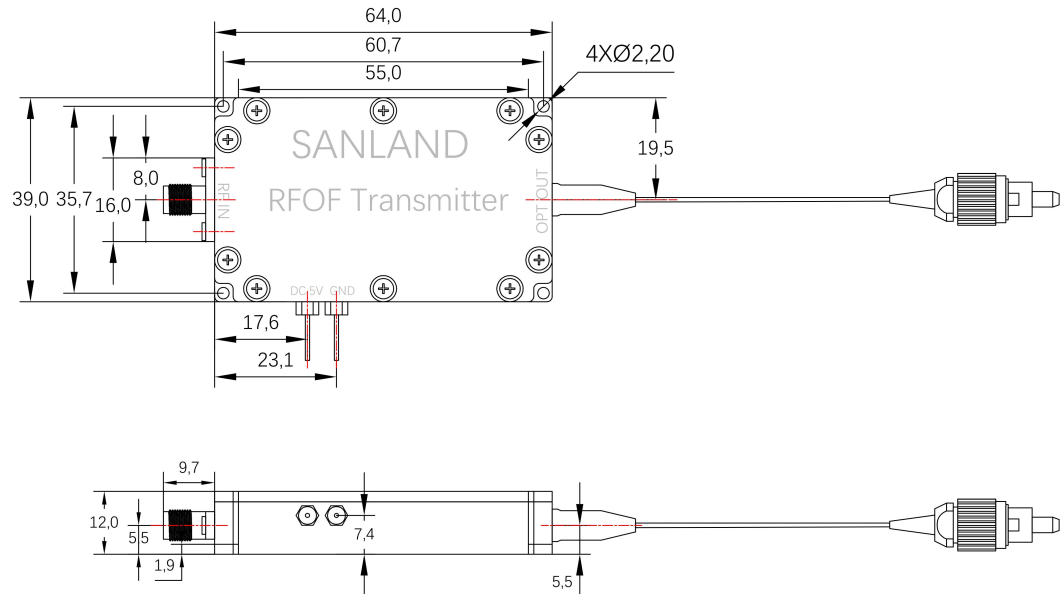
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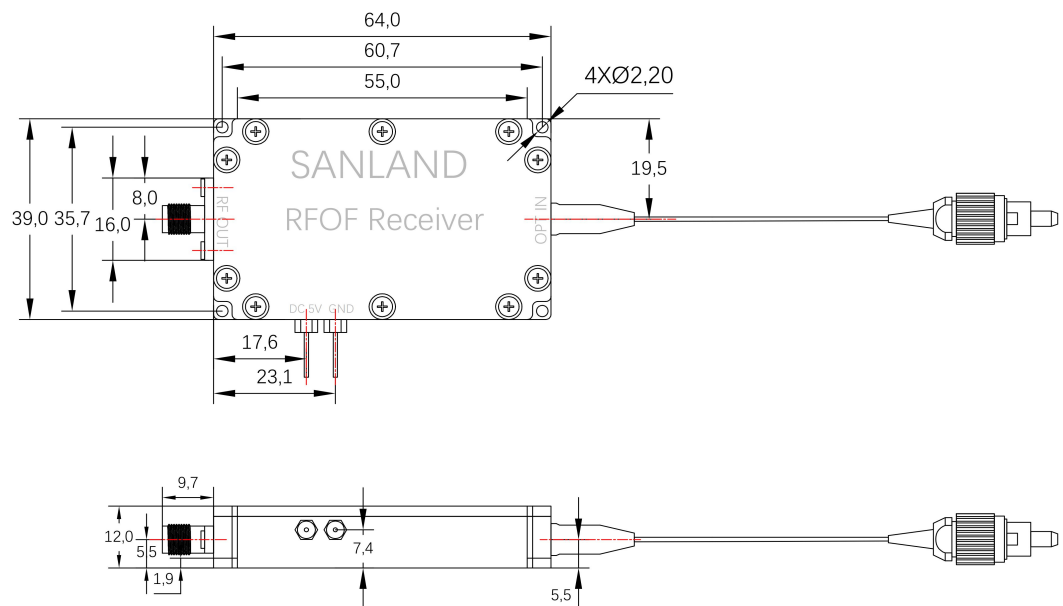
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Dimensions (Unit: mm)

TX Module



RX Module



*Product dimensions may change without notice. This is sometimes required for non standard specifications.



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Ordering Information

	06G	☐	☐	1	☐	☐	☐
Prefix	High RF Frequency	Wavelength	TX/RX	Package	Fiber Connector	Low RF Frequency	
RFOF-	6GHz = 06G Special = 000	1550 nm = 1 1310 nm = 3 Special = 0	Receiver = 1 Transmitter = 2 Pair ^[1] = 3	Module = 1 Special = 0	FC/APC = 2 FC/UPC = 3 SC/APC = 4 SC/UPC = 5 LC/APC = A LC/UPC = U Special = 0	5MHz = 1	

Note:
 [1]. Pair = Receiver + Transmitter
 Red marked -- Special order

Application Notes

Fiber Core Alignment

Note that the minimum attenuation for these devices depends on excellent core-to-core alignment when the connectors are mated. This is crucial for shorter wavelengths with smaller fiber core diameters that can increase the loss of many decibels above the specification if they are not perfectly aligned. Different vendors' connectors may not mate well with each other, especially for angled APC.

Fiber Cleanliness

Fibers with smaller core diameters (<5 μm) must be kept extremely clean, contamination at fiber-fiber interfaces, combined with the high optical power density, can lead to significant optical damage. This type of damage usually requires re-polishing or replacement of the connector.



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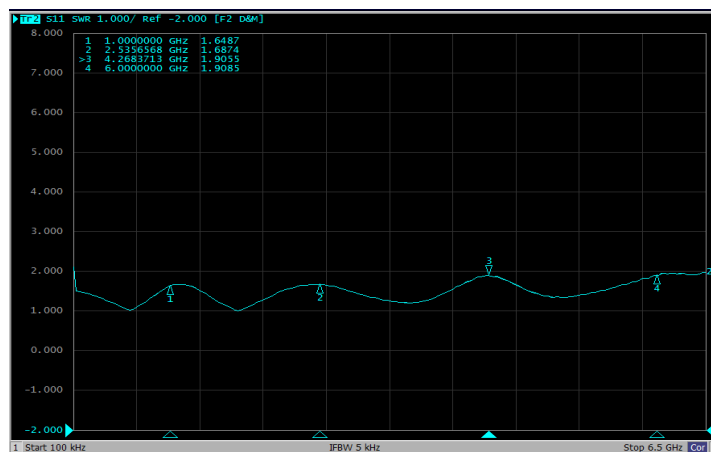
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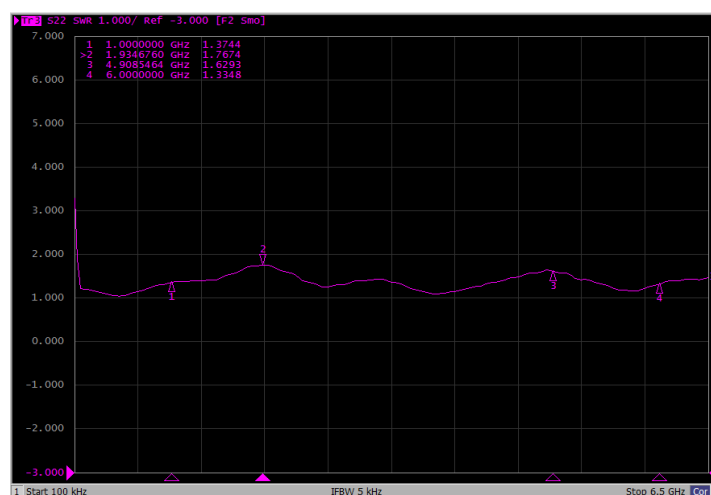
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Typical Response

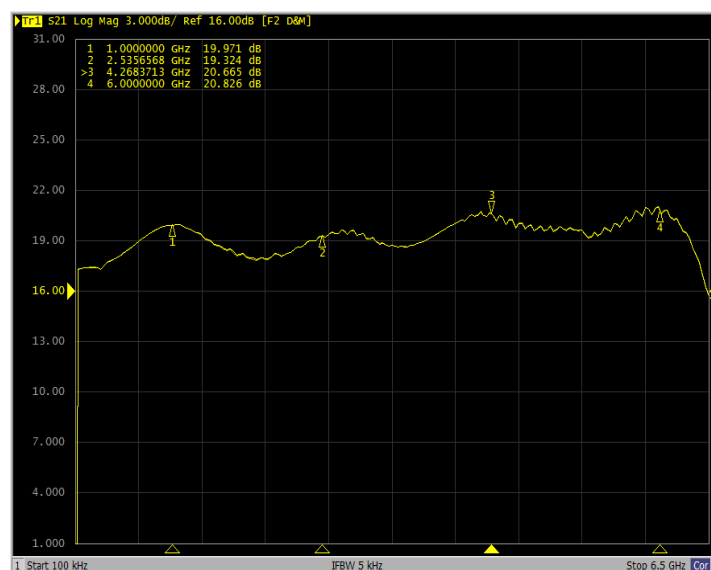
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