

LP-FA-SF-1207-30-CW



Single-Frequency 1207nm Fiber Amplifiers (1095-1340nm)

Core Parameters

Operating wavelength 1095-1340nm, Output optical power 2-30W, Bandwidth $> \pm 5\text{nm}$, Operation Mode CW

Overview

Our Single-Frequency Fiber Amplifiers are designed to provide optical gain across a broad range of wavelengths while maintaining the integrity of narrowband, single-frequency signals.

These amplifiers are optimized to deliver high output power for narrowband sources, ensuring excellent performance without triggering Stimulated Brillouin Scattering (SBS). These modules may also be paired with a second-harmonic generation (SHG) module to efficiently convert NIR light into visible light.

Designed to amplify single-frequency signals without triggering SBS, Large variation of wavelengths, High output power, Diffraction-limited fiber or collimated beam output.

Features

- Ultra-Stable Output Power
- Excellent Beam Quality
- Seed Power-off Protection System
- Low Noise



Technical Specifications

Specification						
Part number	LP-FA-SF-X-Y-CW(1)					
Wavelength Range	976-978nm	1012-1020nm	1020-1080nm	1080-1095nm	1095-1340nm	1340-2000nm
Output Power	>2W/8W	>2W/10W/30W/50W/100W	>2W/10W/30W/50W/100W/130W/180W	>2W/10W/30W/50W/100W	>2W/10W/30W	>2W/5W
Typical Wavelength	977nm, 1012nm, 1064nm, 1112nm					
Bandwidth	>±2nm	>±2nm	>±10nm	>±5nm	>±5nm	>±2nm
Relative Intensity Noise	<0.03% (RMS, 10Hz-10MHz Integration)					
Power Stability	<0.75% @3hours, RMS					
Power Tuning Range	10-100%					
Output Mode	Single Mode PM fiber, FC/APC Connector (Output Power≤2W) OR Collimated Output (All Power)					
Beam Diameter (3)	0.6±0.2mm(Output Power≤30W), 1.7±0.3mm(Output Power>30W)					
Pointing Stability	<±2μrad/°C					
Beam Quality	TEM00, M ² <1.1					
Polarization	Linear, >23dB					

Seed Laser Input Power	$\geq 10\text{mW}(2)$, Single Mode PM Fiber, FC/APC Connector
Seed Laser Input Isolation	$>25\text{dB}$
Output Laser Isolation	$>25\text{dB}$
Cooling	Air Cooling(Output Power $\leq 50\text{W}$)/Water Cooling (All Output Power)

Operating Environment & Power Supply	
Temperature	15-30 °C (Air Cooling) OR 15-35 °C (Water Cooling)
Power Supply	100V-240V, AC, 50/60Hz
Communication	RS422

(1)X is the center wavelength, Y is the output power, for 1064nm 50W amplifier, the part number is LP-FA-SF-1064-50-CW

(2) Default input power should be 10-50mW, for higher or lower input power, please email us for customization

(3) Beam size for collimated outout, If PM fiber FC/APC connector output, there is no extra collimator

Power Spectral Testing

Table 1. Output power versus current curve

Pump Current(A)	Output Power (W) @35mW Seed Laser	PD2 Feedback	PD3 Feedback Value
8	0.03		
9	0.08		
10	0.32	3	22
11	1.37	18-25	95
12	4.35	77-100	308
13	9.36	190-260	615

14	15.8	390-500	1021
15	21.4	480-620	1322
16	26.9	640-860	1348
16.5	29.2	800-1100	1350
16.7	30.5	800-1410	1360

Spectral Testing

The amplified output delivers 30 W at a central wavelength of 1206.46nm, with a signal-to-noise ratio of 42dB.

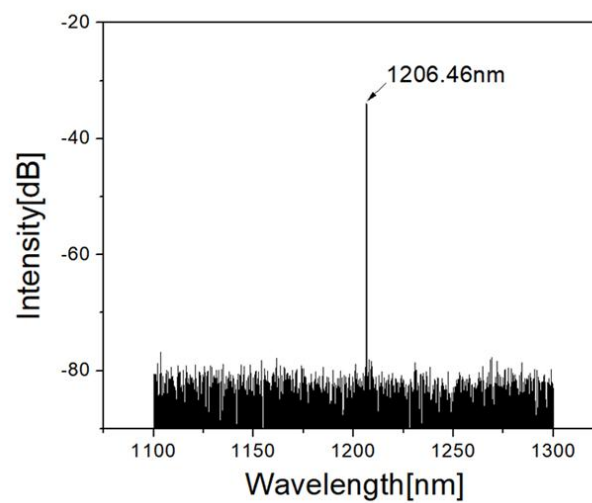


Figure 1. Output spectrum at 30 W power

Power Stability Testing

The laser has an output power of 30 W, with an RMS power stability of 0.45% over a 2-hour period.

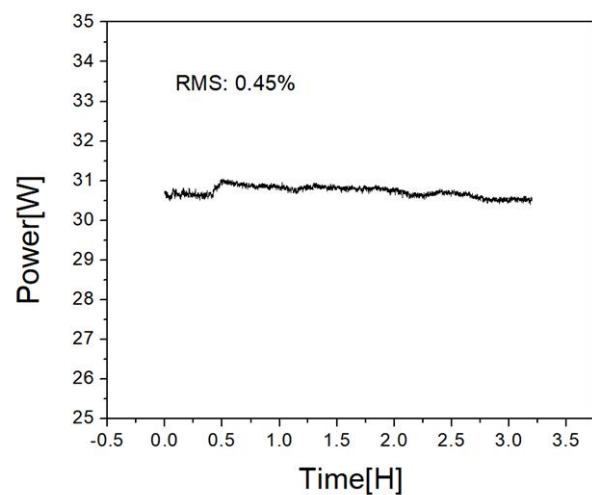


Figure 2. 2-hour output power stability test

Polarization degree testing

The output laser is linearly polarized light with a polarization degree exceeding 19 dB.

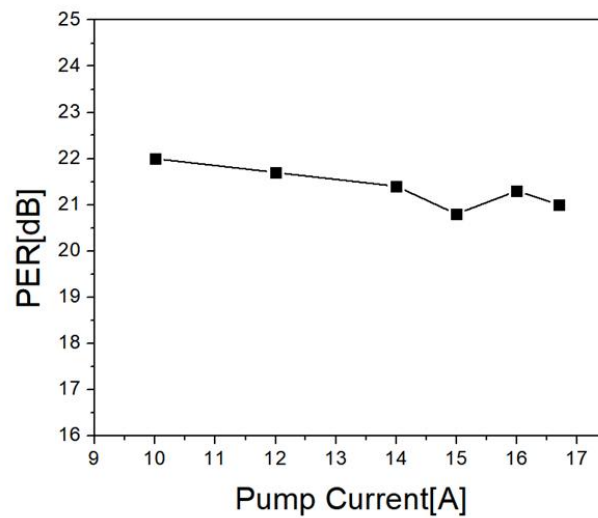


Figure 3. Polarization degree measurement under different pump currents

Beam quality

The output beam quality measurement yields an M^2 value of 1.04. The collimated output spot diameter is approximately 1.5 mm.

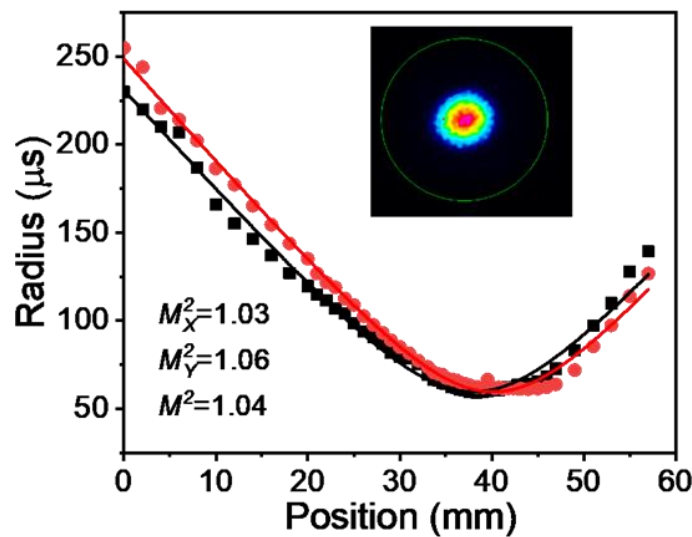


Figure 4. M^2 Test

Line width testing

The seed line width is 254 kHz, and the amplified output line width measurement is 254kHz.

