

SFL-FA-SF-2051-20-CW



2050-2150nm Tm fiber amplifier

Core Parameters

Operating wavelength 2050-2150nm, Output optical power 20W, Beam Quality $M^2 < 1.1$; Bandwidth $> \pm 5\text{nm}$

Overview

Based on Tm-doped fiber amplifier technique, LD-PD PTE.LTD. can provide amplifier that cover 1695-2150nm range, to maximum power of 50W, and keeping very low phase noise and intensity noise.

Features

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

Technical Specifications

Specification					
Part number	FA-SF-X-Y-CW(1)				
Wavelength range	1695-1730nm	1730-1850nm	1850-1900nm	1900-2050nm	2050-2150nm
Output Power	>1W/2W/5W	>2W/10W/20W	>2W/10W/20W/ 30W	>2W/15W/ 30W/50W	>2W/10W/20W

Typical Wavelength	1762nm, 2051nm				
Bandwidth	>±3nm	>±5nm	>±10nm	>±10nm	>±5nm
Relative Intensity Noise	<0.08% (RMS, 10Hz-10MHz Integration)				
Power Stability	<0.75% @3hours, RMS				
Power Tuning Range	10-100%				
Output Mode(2)	Single Mode PM fiber, FC/APC Connector(Output Power≤2W) OR Collimated Output(All Power)				
Beam Diameter	0.8±0.2mm				
Beam Quality	TEM00, M ² <1.1				
Polarization	Linear, >23dB				
Seed Laser Input Power	≥10mW(3)				
Seed Laser Input Isolation	>25dB				
Output Laser Isolation	>25dB				
Cooling	Air Cooling /Water Cooling				

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/RS485

Note:

- (1) X is the center wavelength, Y is the output power, for 1762nm 2W amplifier, the partnumber is FA-SF-1762-2-CW.
 (2) Beam size for collimated out, If PM fiber FC/APC connector output, there is no extra collimator
 (3) Default input power should be 10-50mW, for higher or lower input power, please email us for customization Power Spectral Testing

Power Spectral Testing

pumping current(A)	Output power (W) @ 32 mW seed	PD2 feedback value	PD3 feedback value
8	0.01	0	0
9	0.03	0	0
10	0.15	0	0
11	0.7	0	0
12	3.68	22-30	233
13	9.95	50-102	656
14	17.44	170-330	1230
15	25.4	350-540	1668
15.5	29.9	600-680	2040
15.6	30.8	700-960	2058

Table 1. Output power versus current curve

Spectral Testing

The laser has an output power of 30 W, with an RMS power stability of 0.31% over a 2-hour period

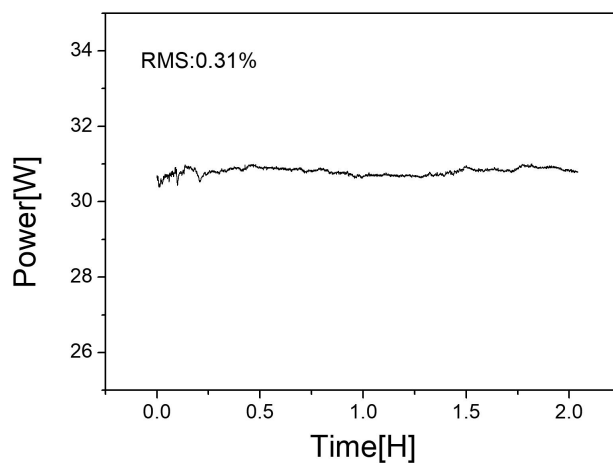
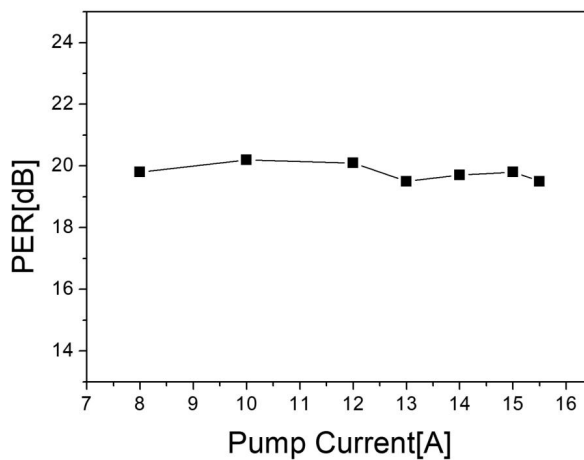


Figure 2. 2-hour output power stability test

Polarization degree testing

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



Beam quality

The output beam quality measurement yields an M2 value of 1.04. The collimated output spot diameter is approximately 1.5 mm.

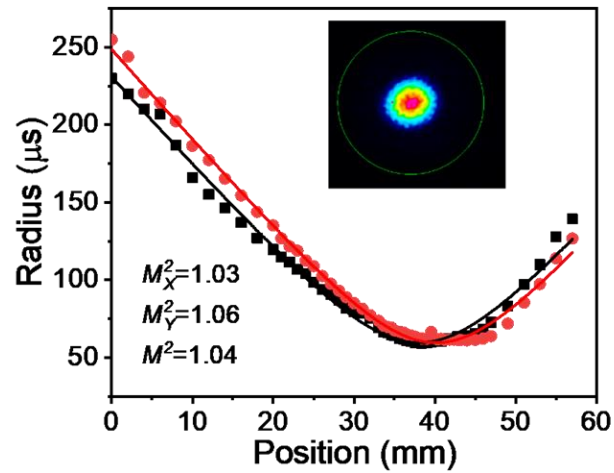


Figure 4. M² Test

Line width testing

The seed line width is 111.6 kHz, and the amplified output line width measurement is 116.5 kHz.

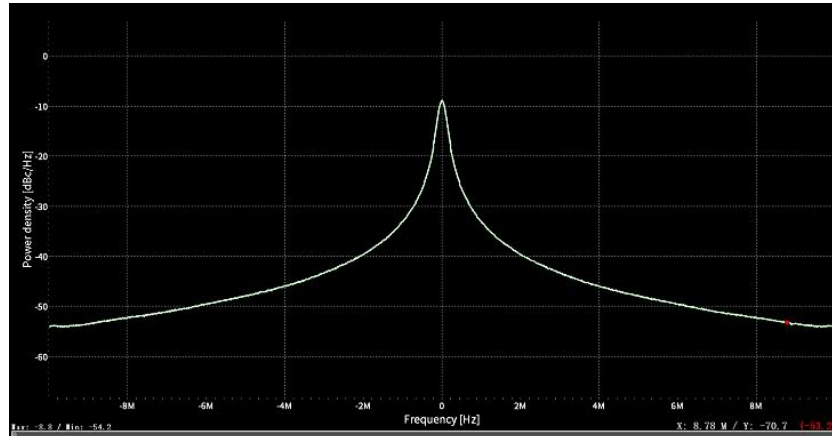


Figure 6. Zoomed line width test (116.5 kHz)