Ultrafast fiber laser 1030nm Femtosecond

Product Description

UFL 1030 features highly integrated optical and circuit architectures, making it compact and portable, especially suitable for industrial or OEM commercial system integration. The UFL 1030 offers a flexible range of performance parameters, with a typical output wavelength of 1030 ± 5 nm, a repetition frequency range of 25±1 MHz, and a pulse width as low as less than 200 fs.

Product features

Customizable wavelength、 High peak power、 Linear polarization、 Diffraction-limited beam quality

Part Number

MP-PLS-FS-200-1030-60mW

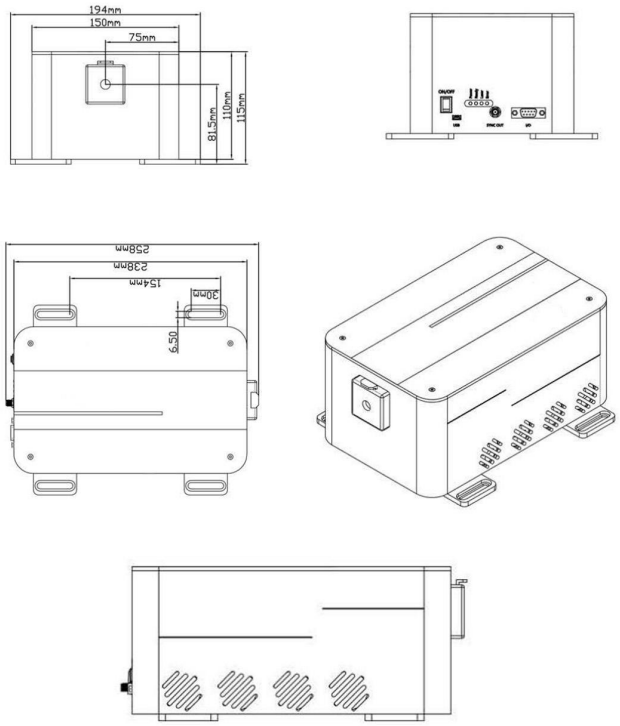
Application area

Ultrafast spectroscopy、 Two-photon polymerization、 High-speed optical sampling、 Light speed measurement

Core parameters

Center Wavelength	Pulse Width	Repetition Frequency
1030nm	<200fs	25MHz

Dimension Drawing



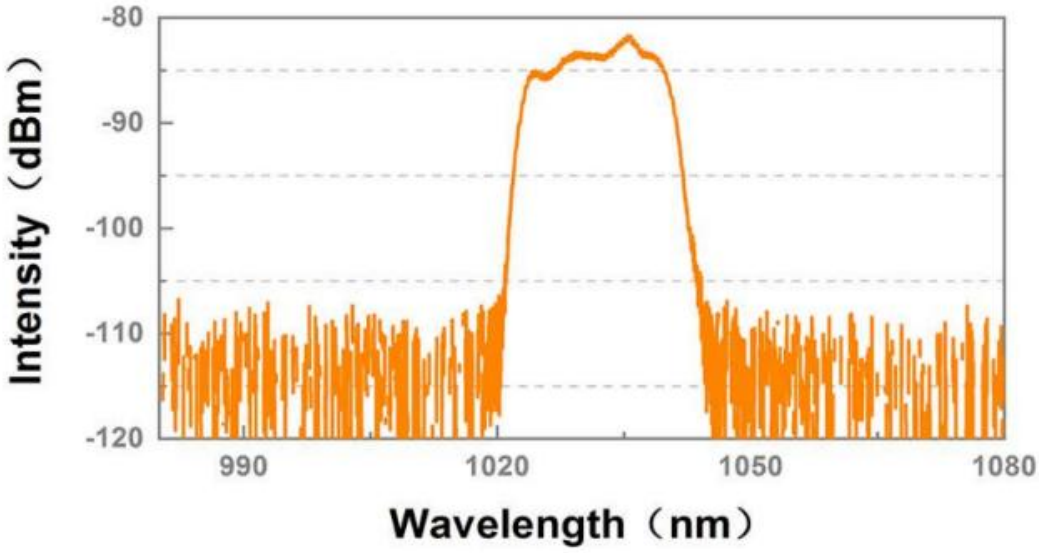
• General Parameters

Parameters

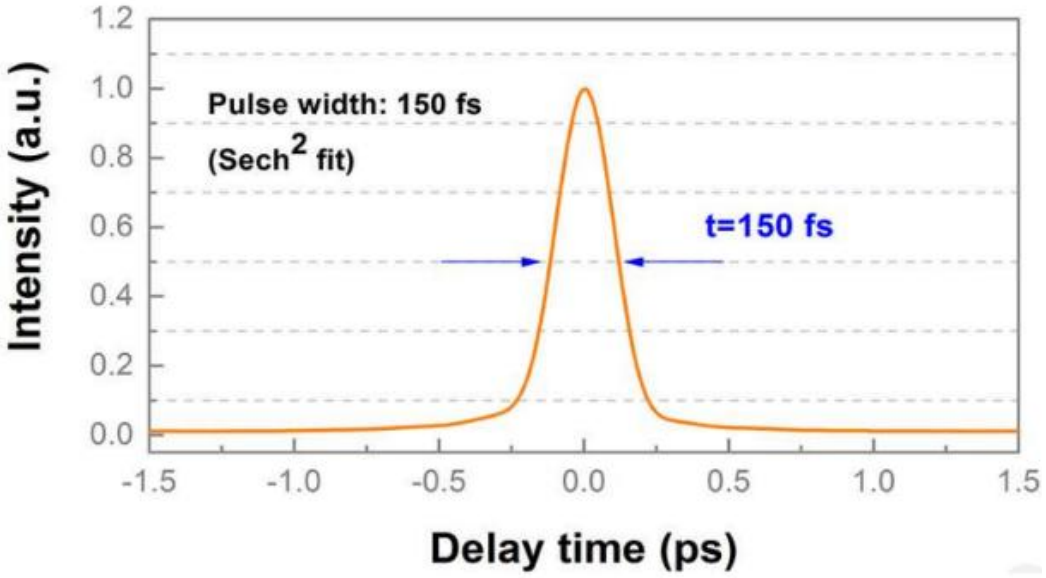
Laser parameter		
Operating wavelength	1030±5 nm	Single pulse energy >4 nJ
Pulse width	<200 fs	Polarization extinction ratio >20 dB
Repetition frequency	25±1 MHz	Beam quality TEM00,M2<1.2
Average power	>60 mW	Output mode spatial light output
Power stability	<0.5%RMS(24h@25°C)	
Electronic, environmental, mechanical parameters		
Power consumption	<30 Watt	Operating humidity 20-80%
Synchronous signal	1 V@50 Ohm	machine weight 1.2 kg
Power supply voltage	12 VDC	Dimensions 258×194×115 mm
Operating temperature	15-35°C	Cooling method: air cooling

Test Date

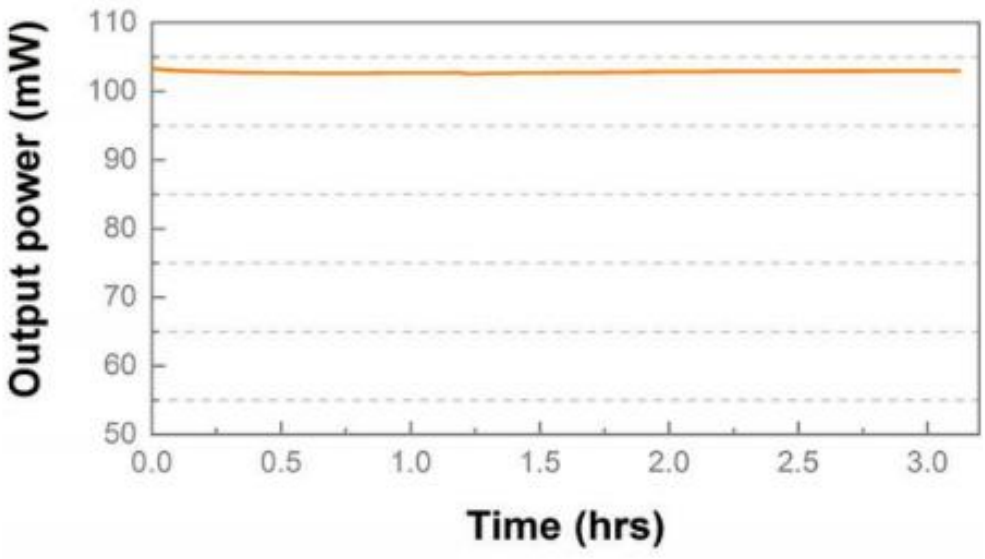
Output spectrum



Pulse autocorrelation trace



Output power stability



Test data:

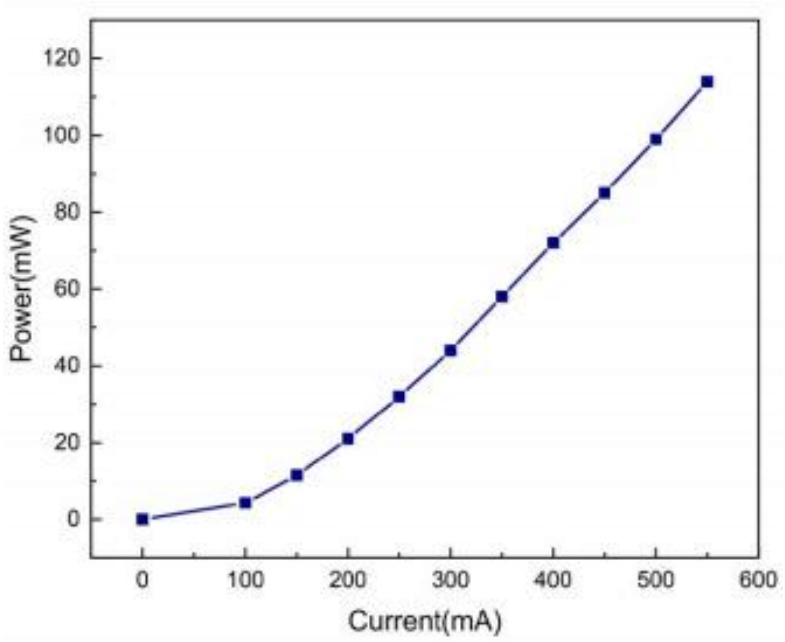
Test time 2022-08-04

Test temperature 25°C（±1)

1. Output power test results

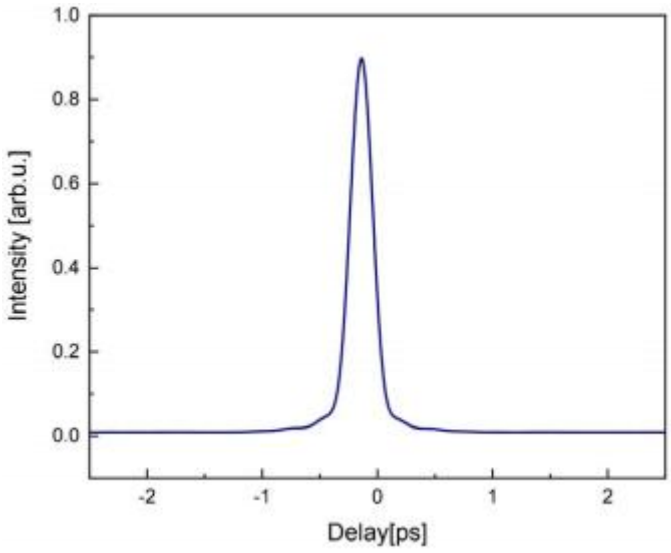
Electric current/mA	Power/mW
0	0.6
100	4.3
150	11.5
200	21
250	32
300	44
350	58
400	72
450	85
500	99

Electric current/mA	Power/mW
550	114



Test Equipment: Power Meter Thorlabs

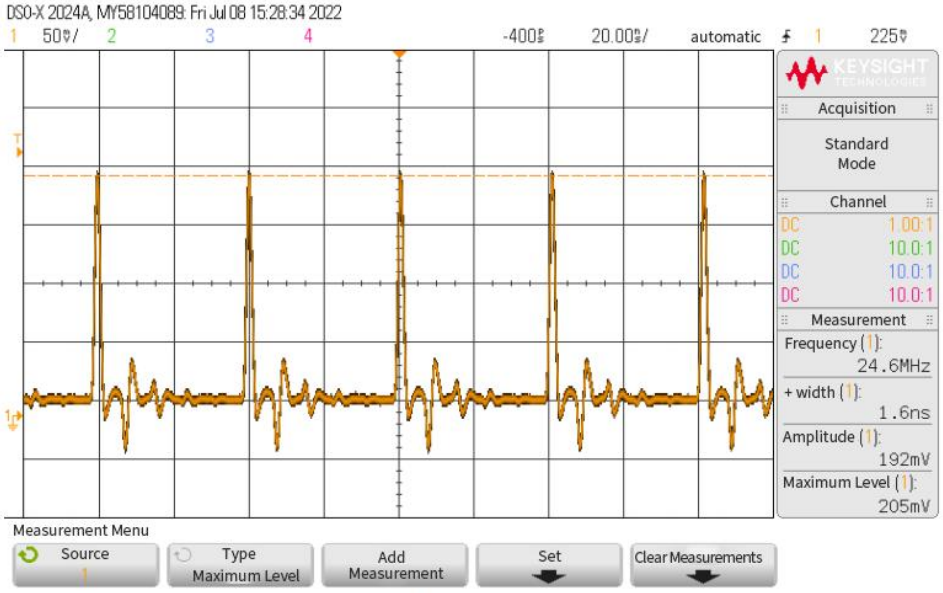
2.Pulse width: (τ=147fs):



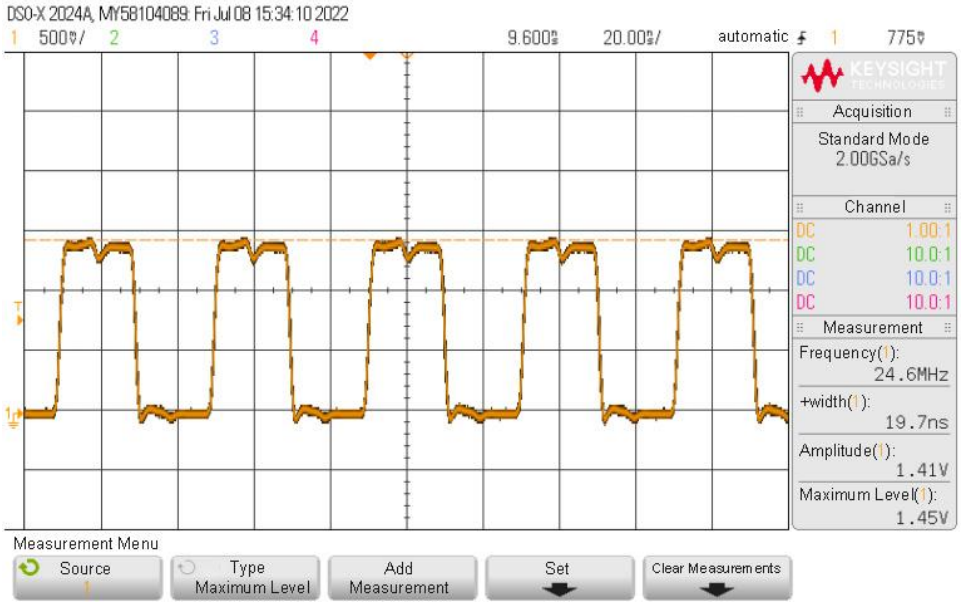
Test instruments: APE autocorrelator; $Sech^2$ fitting

3.Pulse sequence: (f=24.6MHz)

Main output pulse:

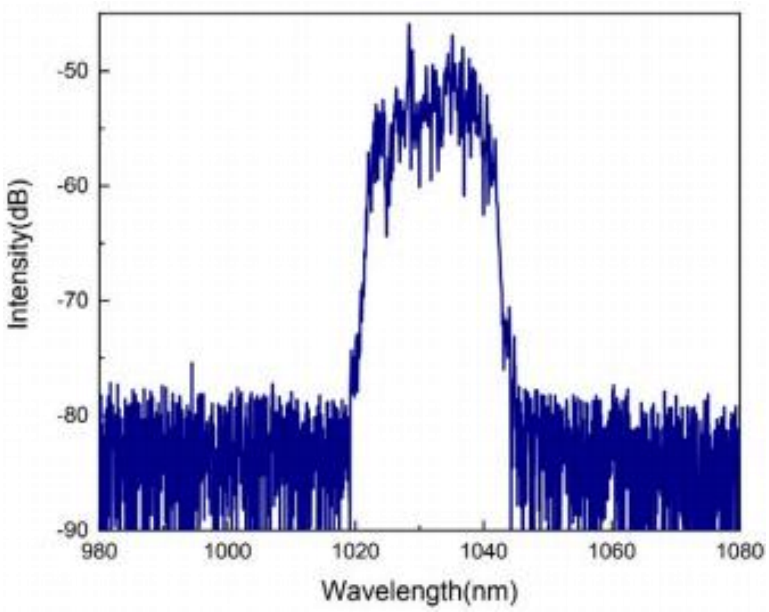


Synchronous output:



Test instruments: DSOX2022A (oscilloscope); DET08C/M (probe)

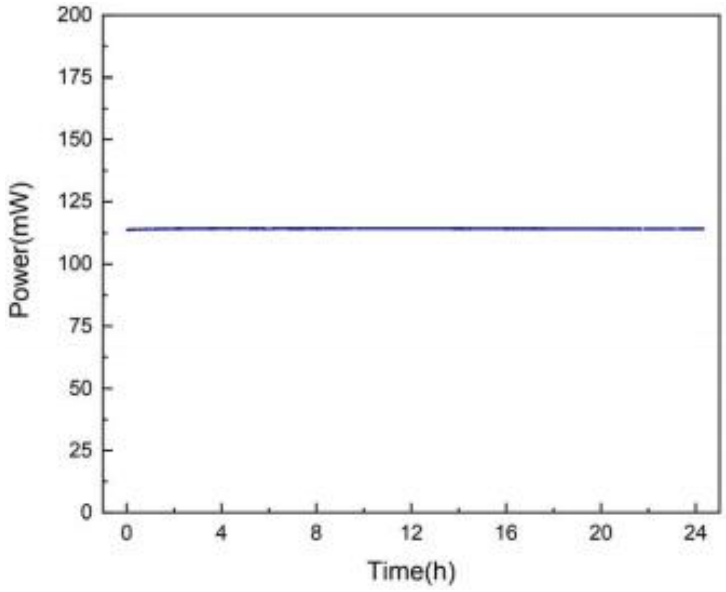
4.Output spectrum @114mW: (λc=1032.5nm,Δλ =8.5nm)



Test instrument: Anritsu MS9740A spectrometer

5.Power stability test: (Power Stability 0.7%RMS)

Average power 114.3mW, stability qualified



Test instrument: power meter Thorlabs, test temperature (25±1°C)

6. Locking mode detection: Start times 1000 times, successful start times within 3s 1000 times, success rate 100%.

Self-starting test of mode-locked laser

Test Data | Eye Diagram Test

Number	Temp (℃)	Current 1 (mA)	Current 2 (mA)	Number	Frequency (MHz)	Volt (mV)	+Width (ns)	Power(mW)	Temp 1(℃)	Temp 2(℃)	Temp 3(℃)	Temp 4(℃)	Result	Pass rate
984	25.00	440.00	1B8	984	24.70	990.00	20.90	0.69	25.48	22.67	25.74	26.62	T	100.00 %
985	25.00	440.00	1B8	985	24.70	990.00	20.90	0.74	26.18	22.90	24.78	28.76	T	100.00 %
986	25.00	440.00	1B8	986	24.70	990.00	20.90	0.70	24.76	22.92	25.14	27.85	T	100.00 %
987	25.00	440.00	1B8	987	24.70	990.00	20.90	0.72	25.47	23.33	24.27	28.08	T	100.00 %
988	25.00	440.00	1B8	988	24.70	990.00	20.90	0.68	24.97	22.90	24.50	28.73	T	100.00 %
989	25.00	440.00	1B8	989	24.70	990.00	20.90	0.70	25.01	23.27	24.94	26.16	T	100.00 %
990	25.00	440.00	1B8	990	24.70	990.00	20.90	0.74	24.51	22.36	25.26	28.43	T	100.00 %
991	25.00	440.00	1B8	991	24.70	990.00	20.90	0.74	26.11	23.14	25.01	26.74	T	100.00 %
992	25.00	440.00	1B8	992	24.70	990.00	20.90	0.71	24.42	23.01	24.96	26.08	T	100.00 %
993	25.00	440.00	1B8	993	24.70	990.00	20.90	0.71	25.47	22.70	24.73	28.88	T	100.00 %
994	25.00	440.00	1B8	994	24.70	990.00	20.90	0.73	24.96	22.01	24.32	27.24	T	100.00 %
995	25.00	440.00	1B8	995	24.70	990.00	20.90	0.68	24.99	22.58	25.55	27.99	T	100.00 %
996	25.00	440.00	1B8	996	24.70	1000.00	20.90	0.69	25.13	23.00	24.67	28.95	T	100.00 %
997	25.00	440.00	1B8	997	24.70	1000.00	20.90	0.69	25.32	22.70	25.34	26.11	T	100.00 %
998	25.00	440.00	1B8	998	24.60	990.00	20.90	0.67	25.91	23.32	25.71	26.59	T	100.00 %
999	25.00	440.00	1B8	999	24.70	990.00	20.90	0.67	25.41	23.64	24.69	28.39	T	100.00 %
1000	25.00	440.00	1B8	1000	24.70	990.00	20.90	0.67	25.35	22.89	25.69	27.99	T	100.00 %

7. Polarization extinction ratio test

Test structure: laser collimated output → half-wave plate → PBS.

Test method: By rotating the half-wave plate, measure the Max. and Min. power values at the two output ports of PBS. Polarization extinction ratio PER=10log（Pmax/Pmin）.

Pmax=112mW	Pmin=0.6mW
Polarization extinction ratio：22.7dB	

8. Typical light spot (ellipticity 95%@0.2m)