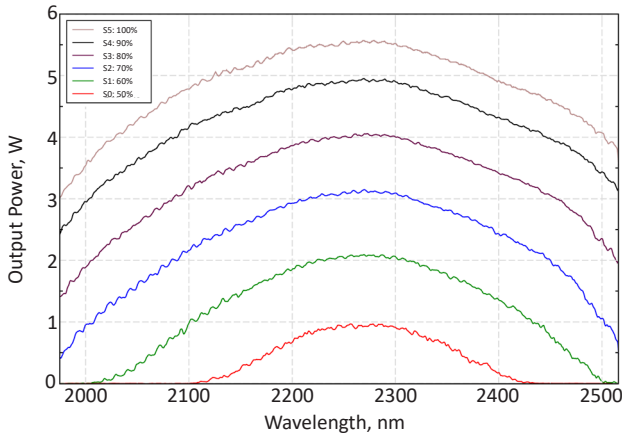




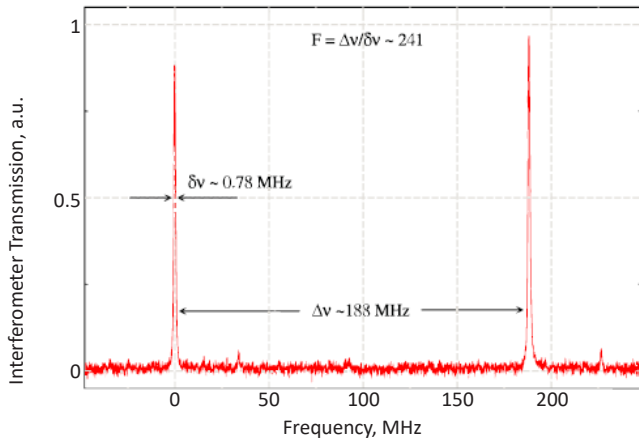
# CL-SF and CLT-SF Series

## Single-frequency Cr:ZnSe/S Lasers

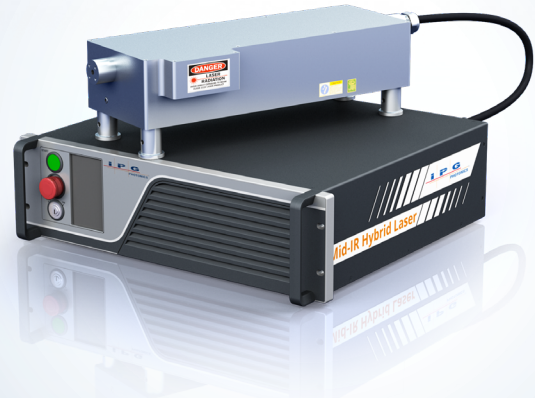
**NEW PRODUCT**



Output Power vs. Wavelength for Different Levels of Pump Power



Interferogram of CLT-SF Radiation Using High Resolution Ring Interferometer



IPG Photonics offers single-frequency Cr:ZnSe/S continuous wave Mid-IR lasers. These lasers are offered as either fixed wavelength CL-SF or tunable CLT-SF models. The tunable range is between 1.9-2.6  $\mu\text{m}$  with a custom selected central wavelength. The lasers feature a linewidth range of  $<1$  MHz and TEM<sub>00</sub> beam mode quality. The SF series Mid-IR lasers provide up to 5 W of output power. These lasers are pumped by IPG's efficient and reliable erbium (1.6  $\mu\text{m}$ ) or thulium (1.9  $\mu\text{m}$ ) CW fiber lasers. Single-frequency Cr:ZnSe/S lasers are used in scientific and R&D applications such as high resolution spectroscopy, OPO pumping and free space communications.



### Applications

- ▶ High Resolution Spectroscopy
- ▶ Free Space Communications
- ▶ Environmental Monitoring
- ▶ THz Generation by Difference Frequency Mixing
- ▶ Mid-IR OPO Pump Source
- ▶ Frequency Comb Generation



### Features

- ▶ Single Longitudinal Mode
  - ▶ Tunable Wavelengths within 1.9-2.6  $\mu\text{m}$
  - ▶ Narrow Linewidth Operation
  - ▶ Output Power up to 5 W
  - ▶ Tunable Wavelength Range\* up to 500 nm
  - ▶ TEM<sub>00</sub> Output Beam Quality
- \* with a single set of optics

# CL-SF and CLT-SF Series

## Single-frequency Cr:ZnSe/S Lasers

Optical Characteristics	CL-SF	CLT-SF
Mode of Operation	CW	
Central Wavelength Tuning Range*, nm	Customer Selected in 1.9-3.0 $\mu\text{m}$	Tunable in 1.9-2.6 $\mu\text{m}$
Spectral Bandwidth, MHz	0.5-10, Typ. <1	
Output Power**, W	0.2-5, Typ. 3	
Polarization	Linear, Horizontal >100:1	
Beam Quality, $M^2$	<1.2, Typ. $\leq 1.1$	
Beam Diameter*** (FW, $1/e^2$ ), mm	3 $\pm 0.5$	
Beam Divergence, mrad	0.2-0.5, Typ. 0.3	
Warm up Time, min	15 from Standby, 60 from Cold Start	

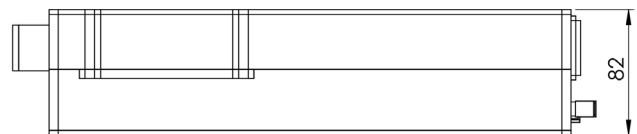
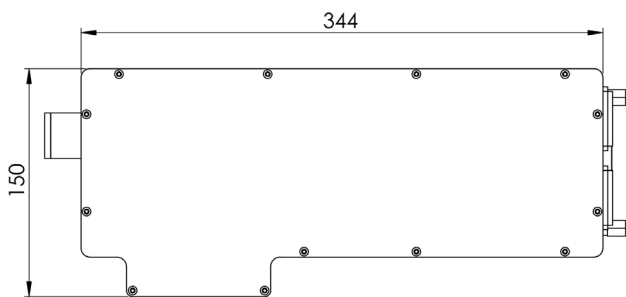
\* 500 nm continuous tuning with a single set of optics. Wavelength tuning range depends on central wavelength. Rapid tuning option available.

\*\* Custom output powers are available upon request.

\*\*\* Beam diameter and beam divergence may be adjusted to meet customer specifications.

### General Characteristics

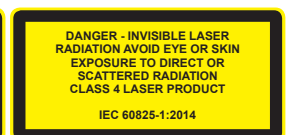
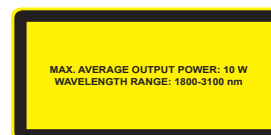
Pump Laser	IPG Photonics ELR or TLR CW Fiber Laser
Pump Laser Dimensions (W x D x H), mm	448 x 403 x 132
Optical Head Dimensions (W x D x H), mm	150 x 345 x 87
Supply Voltage 50-60 Hz, VAC	110-240
Power Consumption, W	200 Typ.



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[www.ipgphotonics.com/midIR](http://www.ipgphotonics.com/midIR)



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