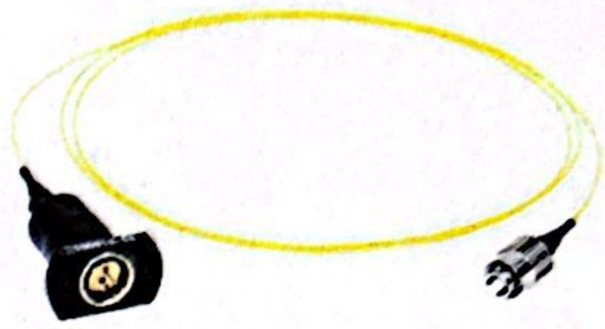
Product Data Sheet

Single Mode Fiber-Pigtailed Laser

LPS-635-FC



S/N: 220427-04
Center Wavelength: 636.0 nm
Fiber Type: SM600
Test Date: 5/3/2022

Diode Package: TO 9 mm
Connector: FC/PC
Tested By: pkrotella

QA: Pass

Summary of Test Data (CW, T_{case}=25°C)

Parameter	*Symbol*	*Value*	*Unit*
Fiber Output Power	P_{op}	2.5	mW
Operating Current@P_{op}	I_{op}	54.3	mA
Operating Voltage@P_{op}	V_{op}	2.23	V
Monitor Current @P_{op}	I_{mon}	0.098	mA
Threshold Current	I_{th}	42.9	mA
Slope Efficiency	ΔP/ΔI	0.23	W/A

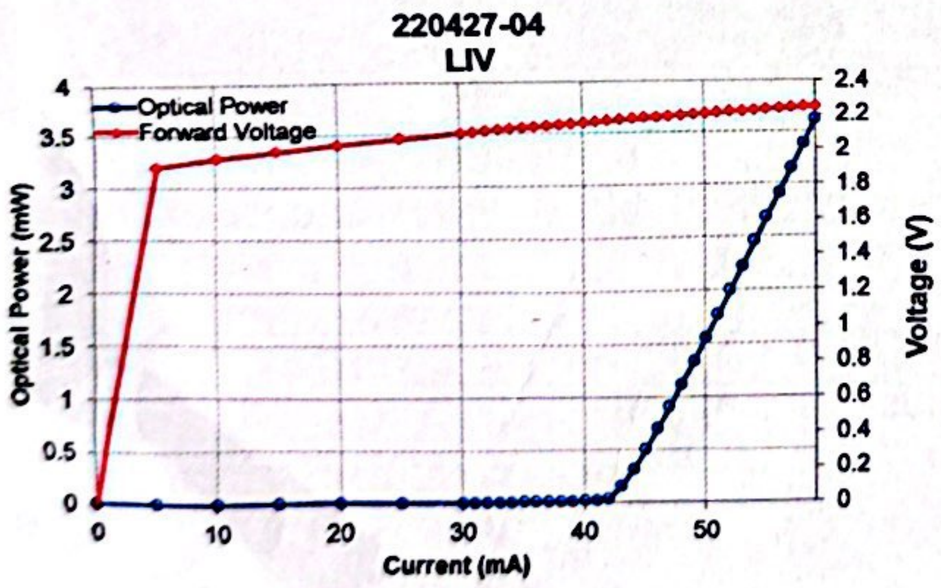
Absolute Maximum Ratings

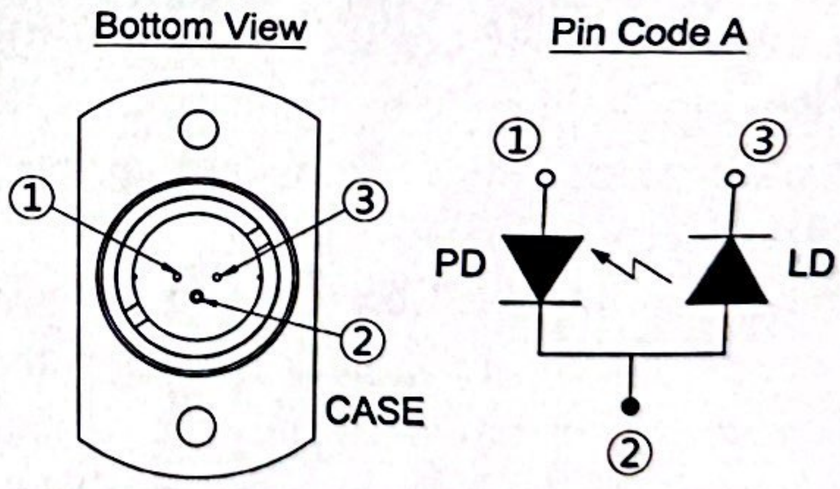
Parameter	*Ratings*	*Unit*
Laser Diode Current*	59	mA
Optical Output Power*	3.5	mW
LD Reverse Voltage*	2	V
Storage Temperature	-10~+65	°C
Case Temperature	0~+50	°C

* CW, T_{case}=25°C

LASER RADIATION
AVOID DIRECT EYE EXPOSURE
CLASS 3R LASER PRODUCT

CAUTION- use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure. There are no user serviceable parts in this product. When proper power is applied to this product, Laser radiation will be emitted from the optical fiber.





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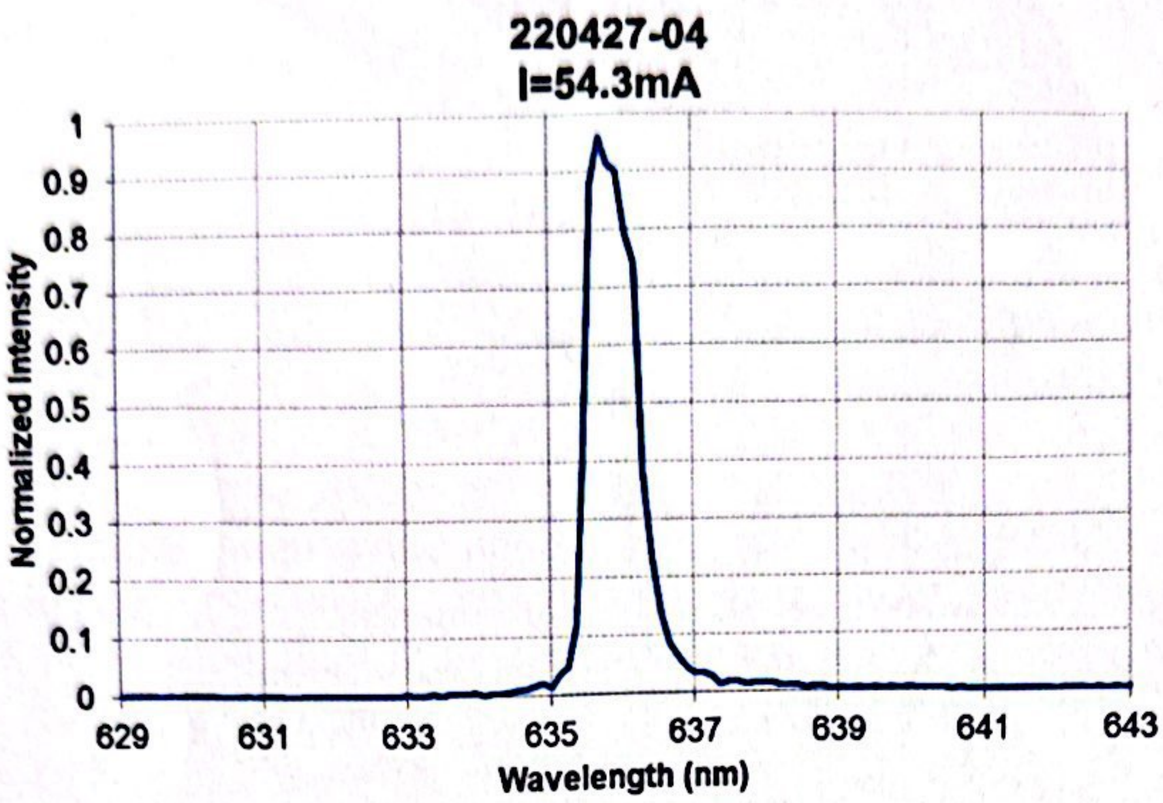

T_{case}=25°C, I_{op}= 54.3mA
Spectrum measured by CCS100.

Important Notes:

1. The maximum ratings mean the limitation over which the laser should not be operated even instant time.
2. Do not clean the fiber connector when the diode is in operation. The laser should be off when plugging or un-plugging the connector.
3. To protect the laser diode from damage due to static electricity (ESD), please follow proper ESD handling precautions.
4. Do not pull or fold the fiber. The fiber is very fragile and easily broken. Avoid handling the fiber by the rubber "boots" of the black housing and connector ends of the pigtail.
5. To ensure safe operation use only with a suitable power source that complies with the pertinent requirements for laser systems as specified in IEC-60825-1 "Safety of Laser Products."
6. Due to the nature of Fabry-Perot laser diodes, the spectrum output will be affected by several factors such as current, temperature, and feedback to the laser. Thus, although the center wavelength will be within the specified tolerance, please note that the peak will vary.

Warranty Information Sheet

Laser Diode Warranty

Laser Diode and Laser Pigtail Warranty

When operated within their specifications, laser diodes have extremely long lifetimes. However most failures occur from mishandling or operating the lasers beyond their maximum ratings. Laser Diodes are among the most static sensitive devices currently made. Since Thorlabs does not receive any warranty credit from our laser manufacturers we cannot guarantee the lasers after their sealed package has been open. Thorlabs will be happy to extend a full refund or credit for any lasers returned in their original sealed package.

Handling and Storage Precautions

Because of their extreme susceptibility to damage from electrostatic discharge (ESD), care should be taken whenever handling and operating laser diodes:

- **Wrist Straps.** Use grounded anti-static wrist straps whenever handling diodes.
- **Anti-static Mats.** Always work on grounded anti-static mat.
- **Storing Lasers.** When not in use, short the leads of the laser together to protect against ESD damage.

Operating and Saftey Precautions

Use an appropriate driver, laser diodes require precise control of operating current and voltage to avoid overdriving the lasers. In addition, the laser driver should provide protection against power supply transients. Select a laser driver appropriate for your application. **Do not use a voltage supply with a current limiting resistor** since it does not provide sufficient regulation to protect the laser.

- ***Power Meter.*** When setting up and calibrating a laser with its driver, use a NIST-traceable power meter to precisely measure the laser output. Its usually safest to measure the laser output directly before placing the laser in an optical system. If this is not possible, be sure to take all optical losses (transmissive, aperture stopping, etc.) into consideration when determining the total output of the laser.
- ***Reflections.*** Flat surfaces in front of a laser diode can cause some of the laser energy to reflect back onto the laser's monitor photodiode giving an erroneously high photodiode current. The problem arises when the window is removed and the reflected energy is gone. A constant power feedback loop will sense the drop in photodiode current and try to compensate by increasing the laser drive current and possibly overdriving the laser. To avoid this, be sure that all surfaces are angled 5-10° and when necessary, use optical isolators to attenuate direct feedback into the laser.
- **Heat Sink.** Laser lifetime is inversely proportional to operating temperature. Always mount the laser in a suitable heat sink to remove excess heat from the laser package.
- **Voltage and Current Overdrive.** Be careful not to exceed the maximum voltage and currents even momentarily. Also, reverse voltages as little as 3 V can damage a laser diode.
- **ESD Sensitive Device.** Even when a laser is operating it is susceptible to ESD damage. This is particularly aggravated by using long interface cables between the laser and its driver due to the inductance that the cable presents. Avoid exposing the laser or its mounting apparatus to ESDs at all times.
- **ON/OFF and Power Supply Coupled Transients.** Because of their fast response times, laser diodes can be easily damaged by transients less than 1µs. High current *device* *s* such as soldering irons, vacuum pumps, fluorescent lamps, etc., can cause large momentary transients; use surge-protected outlets.

If you have any questions regarding laser diodes, please call your local Thorlabs Technical Support Center and an engineer will be happy to assist you.

Life Support and Military Use Application Policy

THORLABS' PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS OR IN ANY MILITARY APPLICATION WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF THORLABS, INC.

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system or to affect its safety or effectiveness.
3. The Thorlabs products described in this document are not intended nor warranted for usage in Military Applications.

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