

- ⊗ Wavelength: 405+/-5 nm
- ⊗ Output Power: Up to 1000mW free space / 800mW fiber coupled
- ⊗ High output power and high efficiency
- ⊗ Proven reliability
- ⊗ Custom packaging available
- ⊗ Custom wavelengths and laser designs are available.



The LDX-3102-405 is a high-power laser diode chip. Designed for low divergence and high brightness, and offers proven reliability. This chip is used in a wide range of applications in the medical, industrial, research, and military markets.

These lasers are available in the following free space and fiber-coupled packages:

9mm Special, 9mm SMA, and custom package options.

### **Device Specifications (Specified values are at rated power at 25° on a C-mount)**

Parameter	LDX-3102-405	Units
Output Power	1,000	mW
Wavelength	405	+/-5 nm
Spectral Width	2	nm
Operating Temperature	25	°C
Aperture Size	20	um
Operating Current	1,200	mA
Threshold Current	300	mA
Slope Efficiency	1.20	W/A
Forward Voltage	4	V
Fast Axis Divergence	27	° (FWHM)
Slow Axis Divergence	12	° (FWHM)
Polarization	TE	N/A
Fiber Size HHL, BTF, FCP <sup>1</sup>	105	um
Min. Fiber Size 9mm SMA <sup>2</sup>	170	um
Expected Lifetime <sup>3</sup>	>5,000	Hours (EOL) <sup>4</sup>

Unless otherwise indicated, all values are nominal.

1. Other fiber diameters are available upon requested.
2. If minimum fiber size is used, a high power SMA connector is required.
3. Lifetime is greatly affected by Package type, Operating temperature, Thermal resistance, Operation (CW vs Off/On), and Packaging stress
4. End of Life (EOL) is defined as when the operating current must be increased by >20% to maintain the Beginning of Life (BOL) optical output power.

LDX follows a policy of continuous product improvement.

Specifications are subject to change without notice.

These components do not comply with the Federal Regulations (21 CFR Subchapter 1) as administered by the Center for Devices and Radiological health. Purchaser acknowledges that his/her products must comply with these regulations before they can be sold to a customer



Free Space Package - Exposed Emitter			
Package		Features	Options
C-Mount Package		Small footprint with screw mounting Material – Copper (OFHC) Fast-axis lensing	Fast-axis lensing
B-Mount Package		Very small footprint Requires soldering to heatsink Material – Copper Tungsten (CuW)	Fast-axis lensing
Chip-on-Submount		Very small footprint Requires soldering to heatsink Material – BeO	Fast-axis lensing

Free Space Package - Hermetically Sealed Windowed Packages			
Package		Features	Options
9mm Package		Industry-standard package Header material – Copper	Photodiode, Isolated package, Fast-axis lensing
TO-3 Package		Mounting to heatsink with screws Header material – Copper	TEC, Thermistor, Photodiode, Fast-axis lensing
HHL Package		Internal peltier cooler (TEC), thermistor, and photodiode Header material – Copper	Fast-axis lensing

FAC Lensing Options:		
Best Collimation	L1	Less than 1° divergence in the fast axis direction.
Squared Beam FAC	L2	Matches the fast-axis to the slow-axis divergence.

Fiber Coupled Packages - Hermetically Sealed - >80% Coupling Efficiency			
Package		Features	Options
9mm SMA FC Package		Industry-standard package SMA connector for detachable fiber Header material – Copper	Photodiode, Isolated package
8-Pin BFC Package		Built-in internal TEC and Photodiode Fiber pigtail with SMA connector Header material – Copper	Thermistor
2-Pin FCP Package		Fiber pigtail with SMA connector Header material – Copper	none
HHL-FC Package		Fiber pigtail with SMA connector Internal peltier cooler (TEC), thermistor, and photodiode Header material – Copper	none

Part Numbering System											
<p><b>LDX-XXXX-XXX-XXX-XXX</b></p> <p>LDX Optronics</p> <p>Chip Design</p> <p>Wavelength</p> <p>Package Type</p> <p>C – C-Mount B – B-Mount Q – Q-Mount COS – Chip on Submount 9 – 9mm Package TO3 – TO-3 Package HHL – HHL Package 9-SMA – 9mm SMA Package HHL-FC – HHL Package BFC – 8 pin High Heat Load FCP – 2-pin Package CHIP – Unmounted Chip BAR – Unmounted Bar</p> <p>Options</p> <p>TEC – Internal TEC PD – Photodiode T – Thermistor L1 – FAC Lens, Best Collimation L2 – FAC Lens, Squared Beam AR – Low AR Coating</p>	<table border="1"> <thead> <tr> <th>Part Number</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>LDX-3115-680-9</td> <td>Semiconductor Laser Diode, 680±3 nm, 1200mW, 150um emitter, 9mm Package</td> </tr> <tr> <td>LDX-2405-690-BFC-105</td> <td>Semiconductor Laser Diode, 690±3 nm, 400mW, 50um emitter, Pigtailed Fiber Coupled 8-pin BFC Package w/ &gt;80% Output Power from Fiber, Includes 105um, 0.22NA, 1m long fiber pigtail with SMA connector</td> </tr> <tr> <td>LDX-2410-645-B-L1</td> <td>Semiconductor Laser Diode, 645±5 nm, 400mW, 100um emitter, B-mount w/ FAC Lensing, Best Collimation</td> </tr> <tr> <td>LDX-2710-660-HHL-L2</td> <td>Semiconductor Laser Diode, 660±3 nm, 750mW, 100um emitter, HHL Package w/ TEC, PD, Thermistor, FAC Lens, Squared Beam</td> </tr> </tbody> </table>	Part Number	Description	LDX-3115-680-9	Semiconductor Laser Diode, 680±3 nm, 1200mW, 150um emitter, 9mm Package	LDX-2405-690-BFC-105	Semiconductor Laser Diode, 690±3 nm, 400mW, 50um emitter, Pigtailed Fiber Coupled 8-pin BFC Package w/ >80% Output Power from Fiber, Includes 105um, 0.22NA, 1m long fiber pigtail with SMA connector	LDX-2410-645-B-L1	Semiconductor Laser Diode, 645±5 nm, 400mW, 100um emitter, B-mount w/ FAC Lensing, Best Collimation	LDX-2710-660-HHL-L2	Semiconductor Laser Diode, 660±3 nm, 750mW, 100um emitter, HHL Package w/ TEC, PD, Thermistor, FAC Lens, Squared Beam
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