

- ⊗ Wavelength: 690+/-3 nm
- ⊗ Output Power: Up to 2500mW free space / 2000mW fiber coupled
- ⊗ High output power and high efficiency
- ⊗ Proven reliability
- ⊗ Custom packaging available
- ⊗ Custom wavelengths and laser designs are available.



The LDX-3230-690 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:

C-mount, C1-mount (Med) , COS, 9mm, TO3, TO3+TEC  
<4W. 9mm SMA. BFC+TEC

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

| Parameter                             | LDX-3230-690 | Units                    |
|---------------------------------------|--------------|--------------------------|
| Output Power                          | 2,500        | mW                       |
| Wavelength                            | 690          | +/-3 nm                  |
| Spectral Width                        | 1.5          | nm                       |
| Operating Temperature                 | 25           | °C                       |
| Aperture Size                         | 300          | um                       |
| Operating Current                     | 3,100        | mA                       |
| Threshold Current                     | 1000         | mA                       |
| Slope Efficiency                      | 1.20         | W/A                      |
| Forward Voltage                       | 2.3          | V                        |
| Fast Axis Divergence                  | 38           | ° (FWHM)                 |
| Slow Axis Divergence                  | 7            | ° (FWHM)                 |
| Polarization                          | TE           | N/A                      |
| Fiber Size HHL, BTF, FCP <sup>1</sup> | 365          | um                       |
| Min. Fiber Size 9mm SMA <sup>2</sup>  | 450          | 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 >30% 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<br>Material – Copper (OFHC)<br>Fast-axis lensing       | Fast-axis lensing |
| B-Mount Package                      |  | Very small footprint<br>Requires soldering to heatsink<br>Material – Copper Tungsten (CuW) | Fast-axis lensing |
| Chip-on-Submount                     |  | Very small footprint<br>Requires soldering to heatsink<br>Material – BeO                   | Fast-axis lensing |

| Free Space Package - Hermetically Sealed Windowed Packages |   |  |  |
|--|---|--|--|
| Package  |   | Features   | Options  |
| 9mm Package  |  | Industry-standard package<br>Header material – Copper                                    | Photodiode, Isolated package,<br>Fast-axis lensing |
| TO-3 Package   |  | Mounting to heatsink with screws<br>Header material – Copper                             | TEC, Thermistor, Photodiode,<br>Fast-axis lensing  |
| HHL Package  |  | Internal peltier cooler (TEC), thermistor,<br>and photodiode<br>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<br>SMA connector for detachable fiber<br>Header material – Copper                                  | Photodiode, Isolated package |
| 8-Pin BFC Package   |  | Built-in internal TEC and Photodiode<br>Fiber pigtail with SMA connector<br>Header material – Copper                         | Thermistor                   |
| 2-Pin FCP Package   |  | Fiber pigtail with SMA connector<br>Header material – Copper   | none                         |
| HHL-FC Package  |  | Fiber pigtail with SMA connector<br>Internal peltier cooler (TEC), thermistor,<br>and photodiode<br>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> <ul style="list-style-type: none"> <li>C – C-Mount</li> <li>B – B-Mount</li> <li>Q – Q-Mount</li> <li>COS – Chip on Submount</li> <li>9 – 9mm Package</li> <li>TO3 – TO-3 Package</li> <li>HHL – HHL Package</li> <li>9-SMA – 9mm SMA Package</li> <li>HHL-FC – HHL Package</li> <li>BFC – 8 pin High Heat Load</li> <li>FCP – 2-pin Package</li> <li>CHIP – Unmounted Chip</li> <li>BAR – Unmounted Bar</li> </ul> <p>Options</p> <ul style="list-style-type: none"> <li>TEC – Internal TEC</li> <li>PD – Photodiode</li> <li>T – Thermistor</li> <li>L1 – FAC Lens, Best Collimation</li> <li>L2 – FAC Lens, Squared Beam</li> <li>AR – Low AR Coating</li> </ul> | <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 |
| 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   |             |             |                |   |                      |   |                   |   |                     |   |