Innolume GmbH
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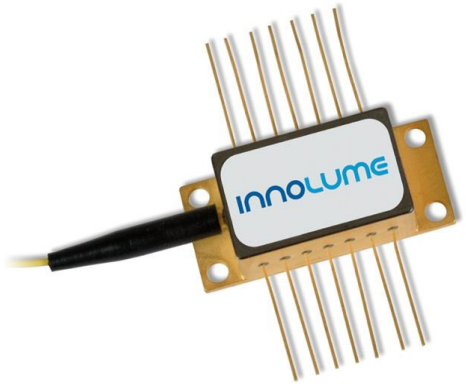
LD-12XX-BF-XXX

Fiber Coupled High Power Laser Diode Module



Features:

- InAs/GaAs Quantum Dot based diode laser
- Up to 300mW output power ex-single mode fiber
- Available wavelength range 1175-1280nm
- Optional: polarization maintaining PM980 fiber
- Optional: integrated monitor photodiode for power control

- High reliable Au/Sn-technology
- Proprietary mirror coating technology enabling high reliability
- CW or pulse (down to 2ns pulse width) operation

Specification DATE: 14th June 2010

SPECIFICATIONS

Test conditions: CW operation, chip temperature 25°C, the module is mounted on room temperature heatsink.

Parameters	Symb.	Min.	Typ.	Max.	Unit
Output power	P_{out}		Table 1		mW
Range of available wavelength at P_{out} [1]	λ	1175		1280	nm
Mean wavelength at P_{out} [1]	λ	λ-10	λ	λ+10	nm
Spectral width @ -3dB level at Pout	Δλ		10	14	nm
Wavelength temperature tunability	Δλ/ΔT	0.45	0.5	0.55	nm/°C
Threshold current	I_{th}		100	180	mA
Operating current at P_{out}	I_{op}		Table1		mA
Forward voltage at P_{out}	V_f		Table 1		V
Polarization Extinction Ratio [2]	PER	15	17		dB
Recommended operating temperature (on thermistor)	T_{op}	15	25	30	°C

[1] Weighted mean ("center of mass") spectral point.
[2] In the case of polarization maintaining fiber.

TABLE 1

Test conditions: CW operation, chip temperature 25°C, the module is mounted on room temperature heatsink.

Output Power (mW)	Operating current (mA)			Forward voltage (V)			Part Number
	Min.	Typ.	Max.	Min.	Typ.	Max.	
100	350	400	550		1.3	1.4	LD-1XXX-BF-100
150	450	600	750		1.4	1.5	LD-1XXX-BF-150
200	650	800	950		1.5	1.6	LD-1XXX-BF-200
250	900	950	1100		1.6	1.7	LD-1XXX-BF-250
300	1000	1100	1400		1.7	1.8	LD-1XXX-BF-300

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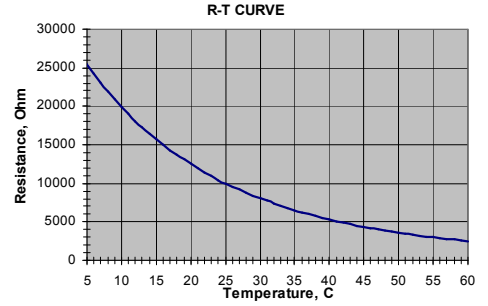
ABSOLUTE MAXIMUM RATINGS

Parameters	Min.	Max.	Unit
Laser Diode reverse voltage		1	V
Laser Diode CW forward current		1500	mA
Thermo Electric Cooler current		3	A
Thermo Electric Cooler voltage		4	V
Storage temperature range (in original sealed pack)	5	80	°C
Case operating temperature range	10	50	°C

THERMISTOR SPECIFICATION

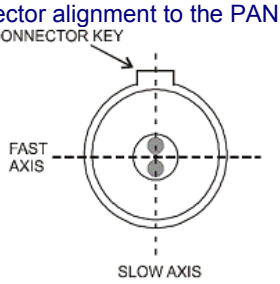
Parameters	Value	Unit
Thermistor type	BC103J1K	
Resistance @25°C	10 ± 1	kOhm
Beta 0-50°C	3890	K



FIBER SPECIFICATION

Parameters	HI1060	PANDA PM980	Unit
Numerical aperture (Typical)	0.14	0.14	
Cutoff wavelength	920±50	920±50	nm
Mode-field diameter (@1060nm)	6.2±0.3	6.6±0.3	μm
Cladding diameter	125±1	125±1	μm
Coating diameter	245±15	245±15	
Length	1.0 ± 0.1		m
Connector	FC/APC connector or bare cleaved end		

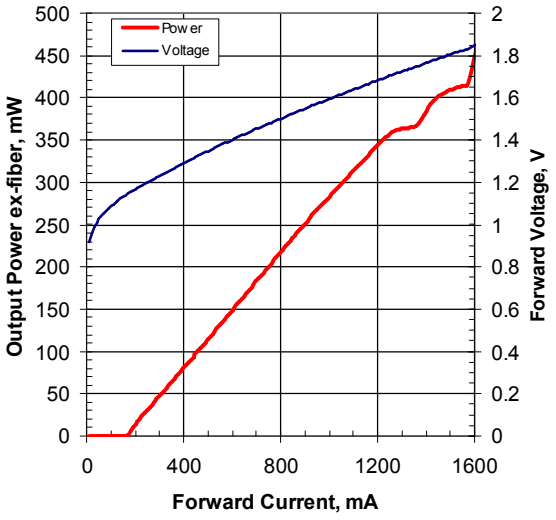
Connector alignment to the PANDA fiber



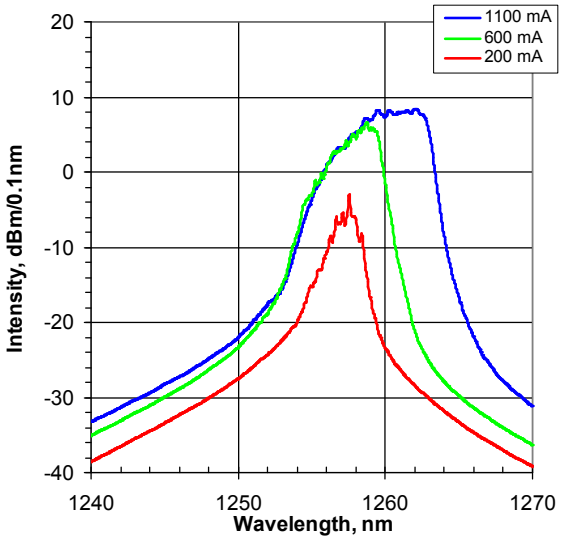
TYPICAL PERFORMANCE for reference only[1]

Test conditions: CW operation, chip temperature 25°C, the module is mounted on room temperature heatsink.

Light-Current-Voltage Characteristics



Spectra Characteristics



[1] Performance is given for the device with wavelength 1260nm. Similar performance is expected for the other wavelengths in the 1175-1280nm range .

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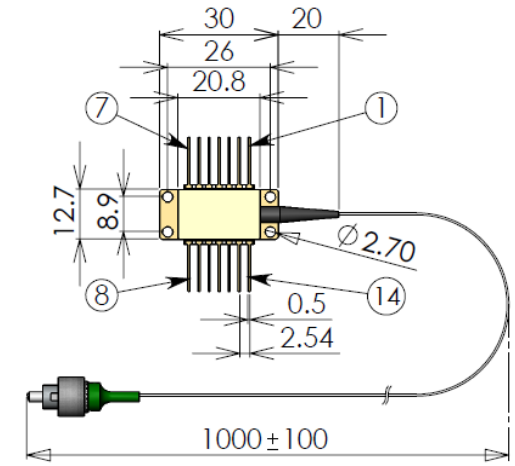
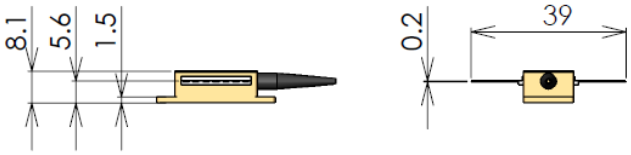
DIMENSIONS (All sizes in mm)





Pin identification:

1. TEC "+"
2. Thermistor
3. Monitor PD anode (optional)
4. Monitor PD cathode (optional)
4.
5. Thermistor
6.
7.
8.
9.
10. Laser Diode anode "+"
11. Laser Diode cathode "-"
12.
13. Case
14. TEC "-"

SAFETY AND OPERATING INSTRUCTIONS

The laser light emitted from this device is invisible and will be harmful to the human eye. Avoid looking directly into the output fiber or into the collimated beam along its optical axis when the device is in operation. Proper laser safety eyewear must be worn during operation.

Operating the laser diode outside of its maximum ratings may cause device failure or a safety hazard. Power supplies used with the component must be employed such that the maximum forward current cannot be exceeded. A proper heatsink for the laser diode module on thermal radiator is required. The module must be mounted on radiator with screws (bolt down in X-style fashion with initial torque set to 0.075Nm and final X-style bolt down at 0.15Nm) or clamps. The deviation from flatness of radiator surface must be less than 0.05mm. It's recommended using of In-foil or similar between bottom of the module and heatsink for thermal interface.

Carefully handle the fragile fiber, do not apply any stress, do not pull the fiber, do not bend fiber with a radius smaller than 3cm. Operate the laser module with clean fiber connector only. Periodically check and clean the connector if necessary. To clean the connector use suitable fiber cleaning tools (e.g. special cleaning tissue for optics). Perform cleaning only while the laser is switched off. Protect the fiber connector with protection cap while it's unplugged.

ESD PROTECTION – Electrostatic discharge is the primary cause of unexpected Laser Diode failure. Take extreme precaution to prevent ESD. Use wrist straps, grounded work surfaces and rigorous antistatic techniques when handling laser diodes.

NOTE: Innolume product specifications are subject to change without notice.

Part Number Identification:
LD-1240-BF-200 -> 200mW output power at mean wavelength 1240nm