Innolume GmbH
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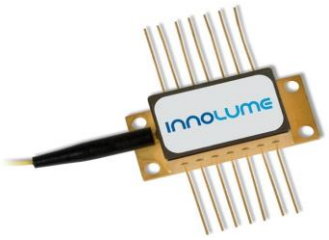
FBG-12XX-PM-350_500

Fiber Bragg Grating wavelength locked High Power Laser Diode



Features:

- FBG wavelength stabilized
- 350 / 500mW output power ex-single mode fiber
- Available wavelength range 1170-1280nm
- Proprietary mirror coating technology enabling high reliability
- Polarization maitaining PM980 fiber
- Individual burn-in and thermal cycling screening
- Optional monitor photodiode
- RoHS compliance

AVAILABLE POWER OPTIONS

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

Part Number	Output power (mW) Pout	Operating current (mA)		Forward voltage (V)	
		Typ.	Max.	Typ.	Max.
LD-12XX-FBG-350	350	1200	1400	1.6	1.8
LD-12XX-FBG-500	500	1500	1700	1.7	1.9

SPECIFICATIONS

Test conditions: CW operation, recomended chip temperature, the case is mounted on room temperature heatsink

Parameters	Symb.	Min.	Typ.	Max.	Unit
Kink-free* output power		1.1×Pout	1.3×Pout		mW
Range of available wavelength	λ	1170		1280	nm
Mean wavelength tolerance				2	nm
Spectral width @ -3dB level at Pout	Δλ	0.080	TBD**	1.5	nm
Threshold current	Ith		120	200	mA
Wavelength shift with FBG temperature	Δλ/ΔT fbg		9	12	pm/°C
Distance from chip to FBG	D	80	100	120	cm
Recommended chip temperature	Top	20	25	40	°C
Polarization Extinction Ratio	PER	15			dB

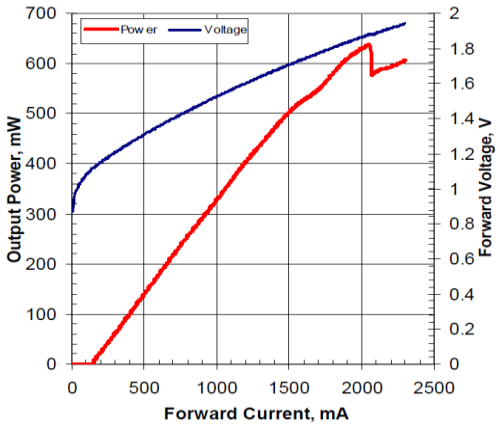
* ΔP/ΔI > 0 (ΔI=5mA)

** 120pm for 350mW power options and 800pm for 500mW power option. It can be adjusted by request.

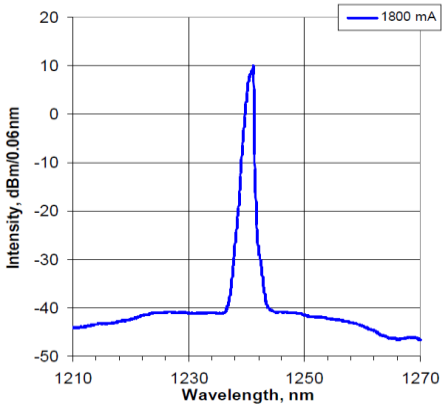
TYPICAL PERFORMANCE for reference only*

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

Light-Current-Voltage Characteristics



Spectral Characteristics



* Performance is given for the 1240nm device. Similar performance is expected for the other wavelengths in the 1170-1280nm range.

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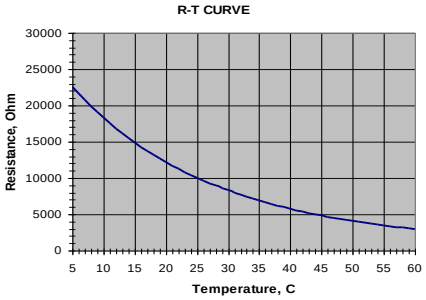
ABSOLUTE MAXIMUM RATINGS

Parameters	Min.	Max.	Unit
Laser Diode reverse voltage	-	2	V
Laser Diode CW forward current	-	Iop+300	mA
Thermo Electric Cooler current	-	3	A
Thermo Electric Cooler voltage	-	4	V
Fiber bend radius	3	-	cm
Chip operating temperature range	5	40	°C
Case operating temperature range	0	70	°C
FBG operating temperature range	-40	120	°C
Storage temperature range	-40	85	°C

THERMISTOR SPECIFICATION

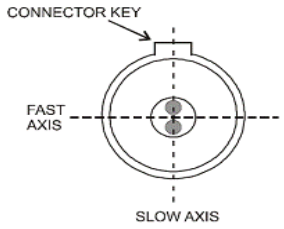
Parameters	Value	Unit
Thermistor type	NTC	-
Resistance @25°C	10 ± 0.1	kOhm
Beta 0-50°C	3375±1%	K



FIBER SPECIFICATION

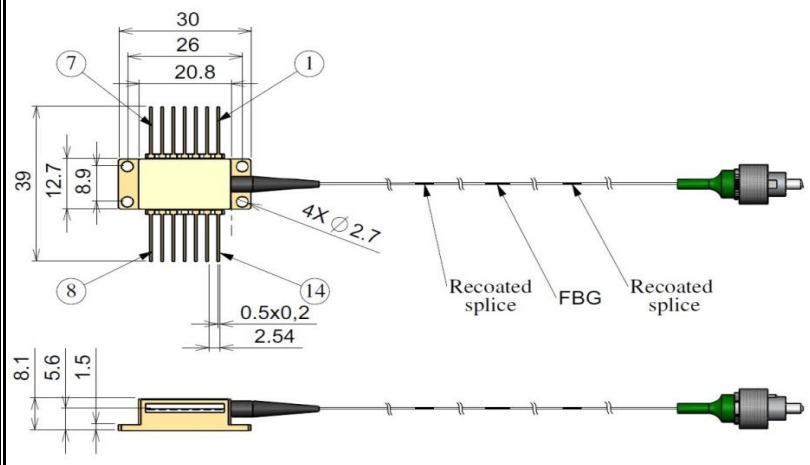
Parameters	PM980	Unit
Numerical aperture (Typical)	0.12	
Cutoff wavelength	900±70	nm
Mode-field diameter (@1060nm)	6.6±0.3	µm
Cladding diameter	125±1	µm
Coating diameter	245±15	µm
Length	1.6±0.2	m
Connector	FC/APC (narrow key)	

Connector alignment to the PANDA fiber



The output light is polarized along the slow axis of PM fiber.

DIMENSIONS (in mm)



Pin identification:

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

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SAFETY AND OPERATING INSTRUCTIONS

The light emitted from this device is invisible and can be harmful to the human eye. Avoid looking directly into the fiber connector when the device is in operation. Proper laser safety eyewear must be worn during operation with open connector.

Absolute Maximum Ratings may be applied to the device for short period of time only. Exposure to maximum ratings for extended period of time or exposure to more than one maximum rating may cause damage or affect the reliability of the device. Operating the device 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 device on thermal radiator is required. The device must be mounted on radiator with 4 screws (bolt down in X-style fashion with initial torque set to 0.075Nm and final X-style bolt down at 0.15Nm) or with clamps. The deviation from flatness of radiator surface must be less than 0.05mm. It's recommended using of Indium foil or thermal conductive and soft material between bottom of the case and heatsink for thermal interface. It's undesirable to use thermal grease for this.

Avoid back reflection to the device. It may give impact on the device performance in aspects of spectrum and power stability. It also may cause fatal facet damage. Using of optical isolators is highly recommended to block back reflection.

Do not pull the fiber. Do not bend a fiber with a radius smaller than 3 cm. Fiber tip should always be protected from any contamination or damage during the process of installation. After removing the dust-preventing cap covered at fiber tip, carefully clean fiber tip by wiping through one direction using optical lens cleaning paper or cotton swab dabbed with Iso-Propanol or Ethyl alcohol. Operate the device with clean fiber connector only.

Electrostatic discharge is the primary cause of unexpected product failure. Take extreme precaution to prevent ESD. During device installation, ESD protection has to be maintained - use wrist straps, grounded work surfaces and rigorous antistatic techniques when handling the product.

Example of Part Number Identification

FBG-1178-PM-350 -> 350mW output power at mean wavelength 1178nm

FBG-1240-PM-500 -> 500mW output power at mean wavelength 1240nm

NOTE: Innolume product specifications are subject to change without notice