Innolume GmbH
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GM-1060-150-YY-250

Fiber coupled curved stripe gain chip for 1000-1150nm tuning range

Features:

- Optimized for wavelength locked operation in external cavity system
- Broad hopping free tuning range
- **Low beam ellipticity**
- Orthogonal beam output for easy optics alignment
- Fiber output

Application:

- External cavity tunable laser

Specification DATE: 01th April 2014

RECOMMENDED OPERATING POINT

Parameter	Min	Typ	Max	Unit
Current		600	700*	mA
Forward voltage		2.0	2.1	V
Heatsink temperature	20	25	30	C

*No self-lasing up to maximum current

TUNABILITY

@ CW, recommended operating point, external cavity in Littrow configuration with ≈10% feedback

Parameters	Min	Typ	Max	Unit
Wavelength of maximum power (λ_{MP})	1090	1100	1110	nm
Optical output power ex fiber @ λ_{MP}		280		mW
Central wavelength of tuning range	1050	1060	1070	nm
Tuning range		150		nm

AMPLIFIED SPONTANEOUS EMISSION (ASE)

Tested for each device @ CW, recommended operating point, without external cavity

Parameter	Min	Typ	Max	Unit
Optical power ex fiber		2.5		mW
Optical power ex facet		60		mW
Mean wavelength		1022		nm
Bandwidth @ -3dB*		30		nm
Fast axis beam divergence @ -3dB, ex facet		16	20	deg.
Slow axis beam divergence @ -3dB, ex facet	4	6.5		deg.
Ripples (RMS) (1)		0.1	0.3	dB

* Radiation coupled in single-mode fiber without lens and measured by OSA with 1 nm resolution.
[1] Central wavelength of tuning range, in 1nm range, 10pm resolution

CHIP PARAMETERS

Parameter	Min	Typ	Max	Unit
Chip length			3	mm
Stripe width			3	um
Back reflectivity of straight stripe facet		9		%
Back reflectivity of tilted stripe facet			0.001	%

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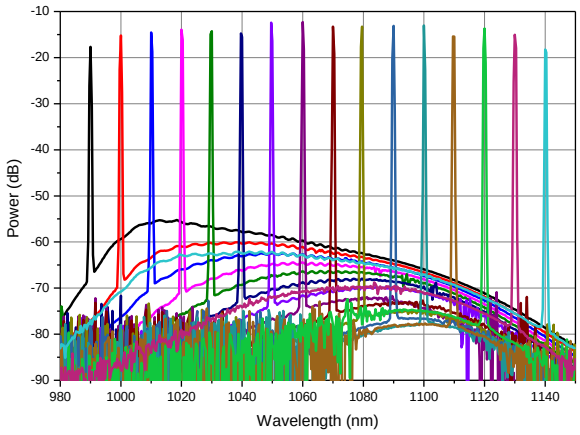
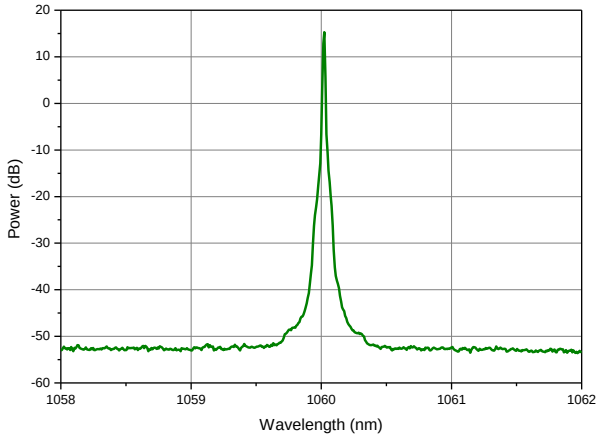
TYPICAL PERFORMANCE IN EXTERNAL CAVITY (EC)

@ CW, 25°C heatsink temperature, Littrow configuration with ≈50% feedback

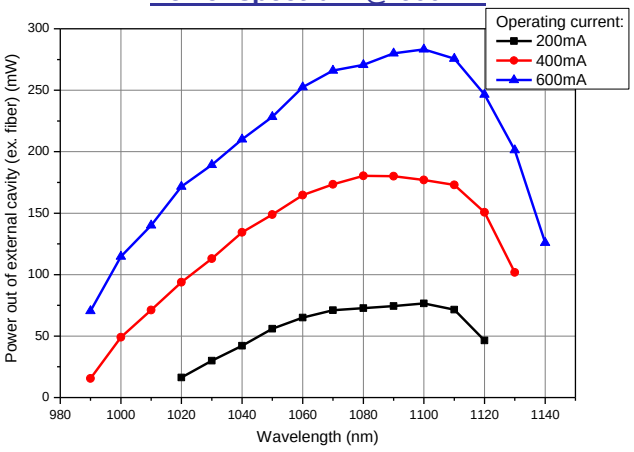
Optical spectra @ 600mA (res. 0.1 nm)



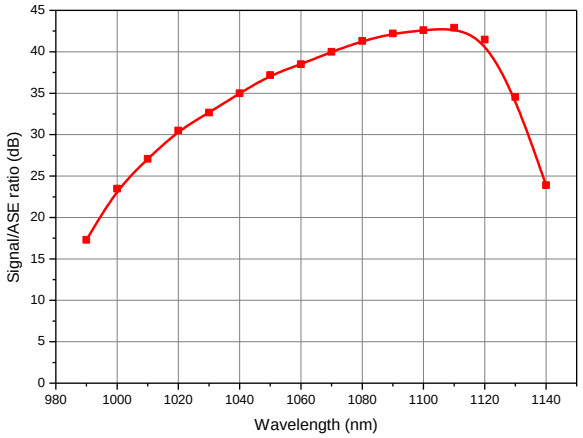
Optical spectrum @ 600mA (res. 10 pm)



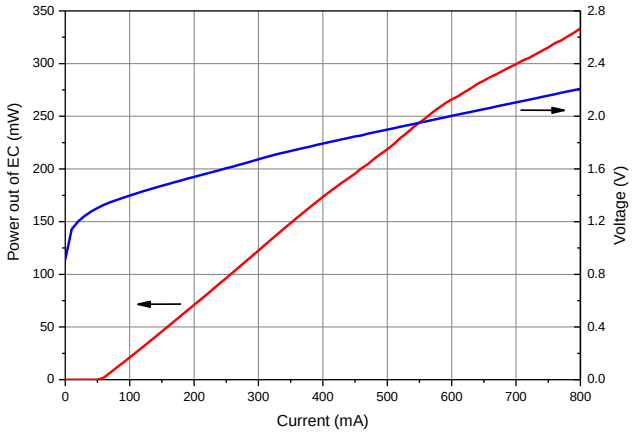
Power spectrum @ 600mA



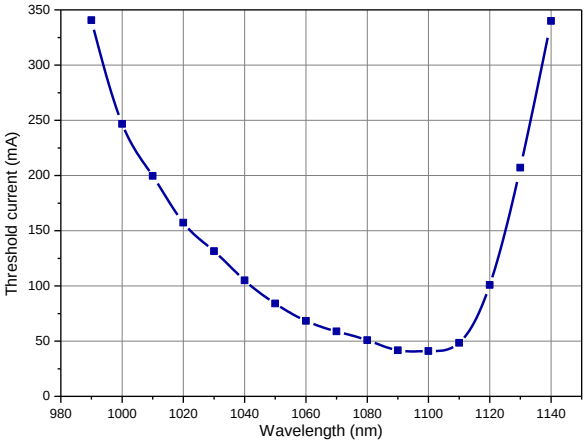
Signal/ASE ratio @ 600mA



Power ex fiber @ 1060nm



Threshold current



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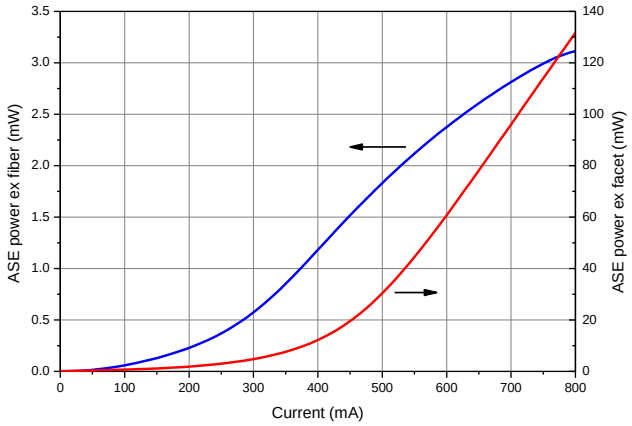
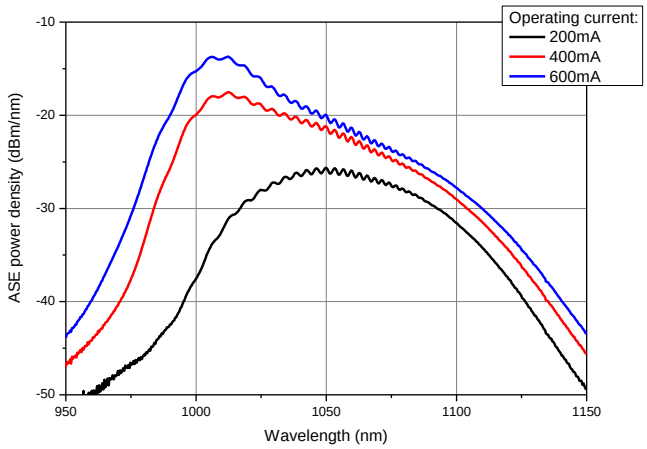
TYPICAL PERFORMANCE WITHOUT FEEDBACK
@ CW, 25°C heatsink temperature

ASE power



ASE spectra

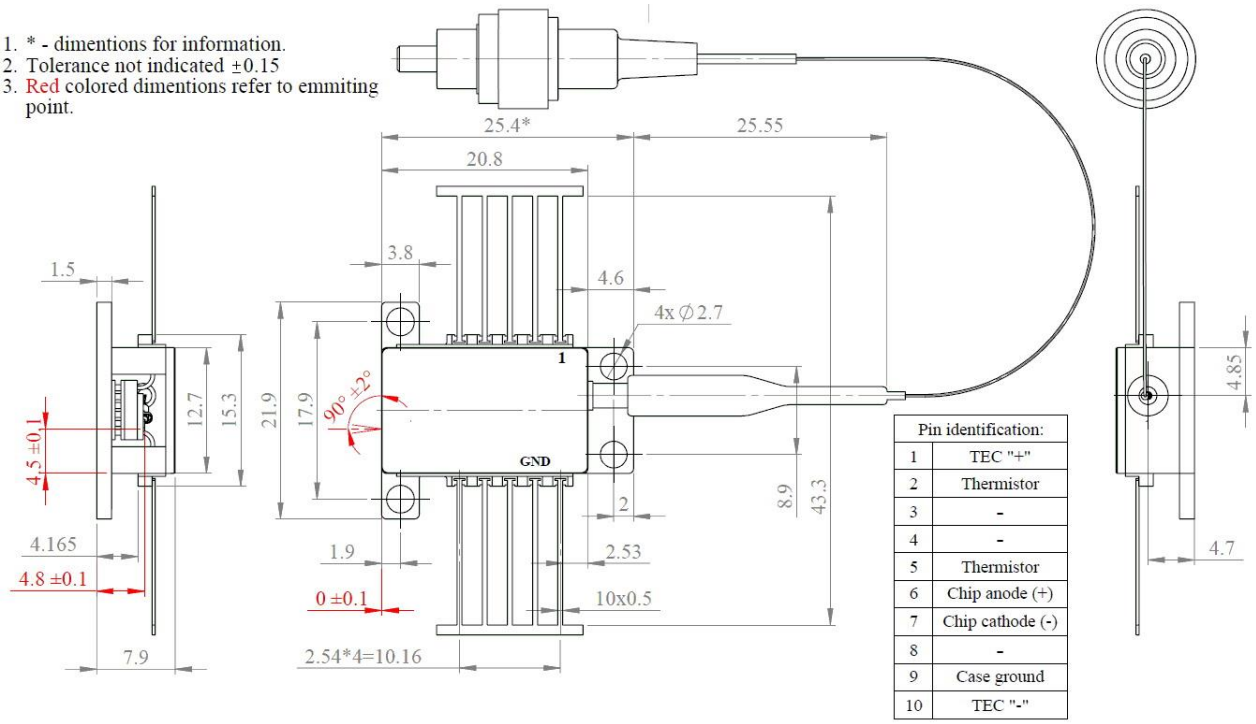


ABSOLUTE MAXIMUM RATINGS

Parameters	Min.	Max.	Unit
Laser Diode reverse voltage		2	V
Laser Diode CW forward current		800	mA
Thermo Electric Cooler (TEC) current		3	A
TEC voltage		4	V
Thermistor temperature	10	50	°C
Case operating temperature range	10	50	°C

DIMENSIONS (subject to change)
(All sizes in mm)

1. * - dimentions for information.
2. Tolerance not indicated ±0.15
3. Red colored dimentions refer to emmiting point.



Pin identification:	
1	TEC "+"
2	Thermistor
3	-
4	-
5	Thermistor
6	Chip anode (+)
7	Chip cathode (-)
8	-
9	Case ground
10	TEC "-"

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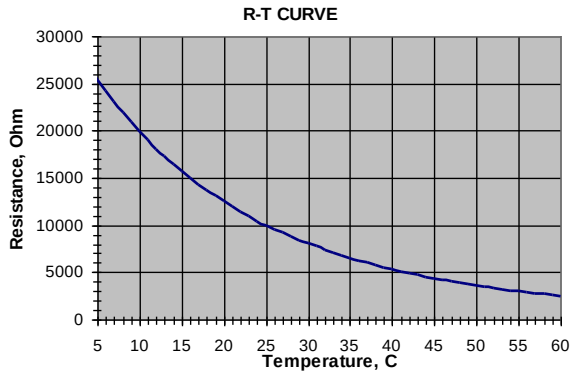
THERMISTOR SPECIFICATION

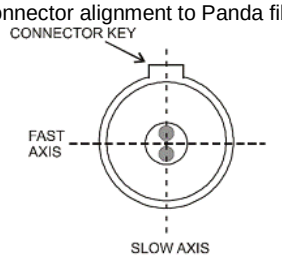
Parameters	Value	Unit
Type	BC103J1K	
Resistance @25°C	10 ± 0.1	kOhm
Beta 25-50°C	3375 ± 1%	K



FIBER SPECIFICATION

Parameters	PANDA PM980	HI1060	Unit
Mode-field diameter	6.6±1.0	6.2±1.0	μm
Cut-off wavelength	920±50	900±70	nm
Cladding diameter	125±1	125±1	μm
Coating diameter	245±15	245±15	μm
Core-to-cladding offset	≤0.5	≤0.5	μm
Length (each port)	1.0 ± 0.2		m
Connector	FC/APC		

Connector alignment to Panda fiber:



PART NUMBER IDENTIFICATION

GM-1060-150-**YY**-250
YY: Optical fiber type
PM – PM980 Panda fiber
HI – HI1060
Example: GM-1060-150-PM-250

SAFETY AND OPERATING INSTRUCTIONS

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

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 above one or more max ratings may cause damage or affect the reliability of the device.
Operating the product outside of its maximum ratings may cause device failure or a safety hazard. Power supplies used with the device must be employed such that the maximum peak optical power cannot be exceeded. A proper heatsink for the device on thermal radiator is required, sufficient heat dissipation and thermal conductance to the heatsink must be ensured.

The device is an open-heatsink laser diode; it may be operated in cleanroom atmosphere or dust-protected housing only. Operating temperature and relative humidity must be controlled to avoid water condensation on the laser facets. Any contamination or contact of the laser facet must be avoided.

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

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