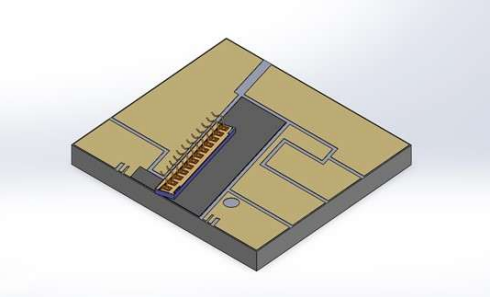
Innolume GmbH
Konrad-Adenauer-Allee 11
44263 Dortmund, Germany

Specification

DFB13XX000CC250MXXXX Preliminary

Distributed-Feedback (DFB) Laser Chip on Carrier



Features:

- Output power > 250mW ex-facet in 1250-1330nm range
- InAs/GaAs Quantum Dot based diode laser
- Proprietary mirror coating technology enabling high reliability
- Strong linear polarization
- RoHS compliance

Applications:

- Datacom
- Coherent sensing and LiDAR
- Quantum and nonlinear optics
- Spectroscopy and gas excitation
- Testing and instrumentation

Recommended Operating Conditions

@ CW, sample is mounted on a copper heatsink

Parameter	Min.	Typ.	Max.	Unit
Heatsink Temperature	20	25*	65	°C
Forward Current		800	1200	mA
Output Power**	100		250	mW

* in some cases may vary depending on the selected wavelength
** kink-free over the entire range

Characteristics

@ CW, heatsink temperature 25°C*, 800mA

Parameter	Min.	Typ.	Max.	Unit
Forward Current @ 250mW			1200	mA
Forward Voltage @ 250mW		1.6	3.5	V
Threshold Current		100	180	mA
Peak Wavelength** (chosen by customer)	1250		1330	nm
Peak Wavelength Tolerance			±1	nm
Wavelength Temperature Tunability		120		pm/°C
Wavelength Current Tunability		2		pm/mA
Side-Mode Suppression Ratio (SMSR)	40	45		dB
Slow Axis Beam Divergence (FWHM)***	5	9	14	deg
Fast Axis Beam Divergence (FWHM)***	44	50	58	deg
Polarization Extinction Ratio (PER)	15	18		dB
Polarization		TE		

* in some cases may vary in 20-65°C range depending on the selected wavelength
** reachable within wavelength tolerance at power > 250mW; performance at wavelength range edges may require minor specification adjustments
*** FF specified for all chip batches in 1250-1330nm range; more precise data available on request for specific chip batch

Chip parameters

Parameter	Min.	Typ.	Max.	Unit
Chip length	3		3.5	mm
Back-reflection from Front Facet		0.001	0.01	%
Back-reflection from Back Facet		99		%

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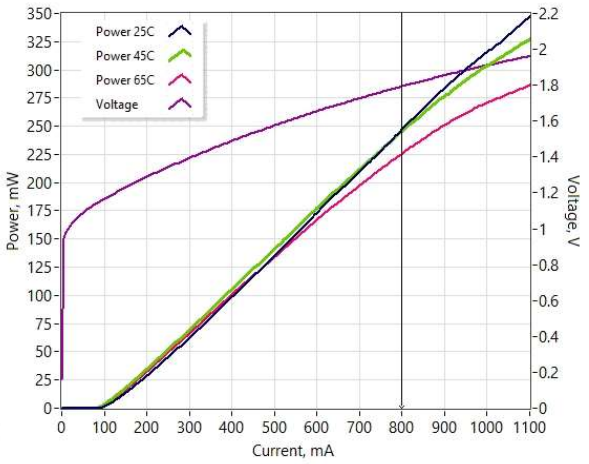
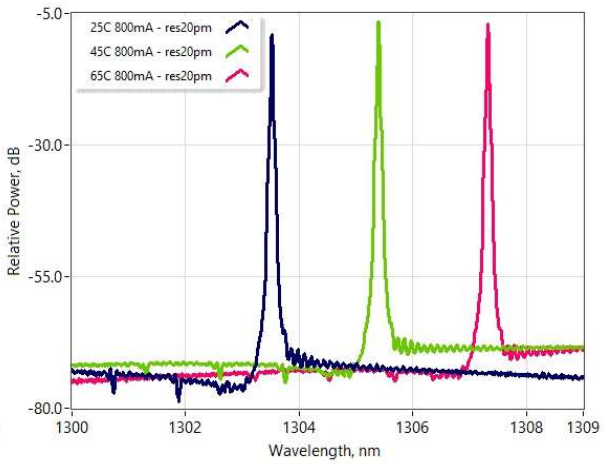
Typical Performance (for reference only)

@ CW, recommended operating conditions

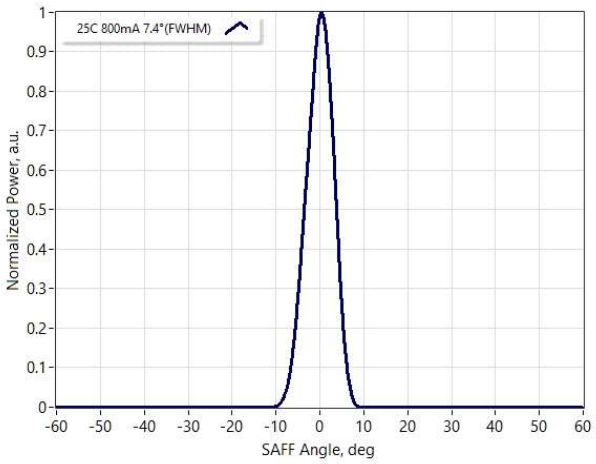
Light-Current-Voltage Characteristics



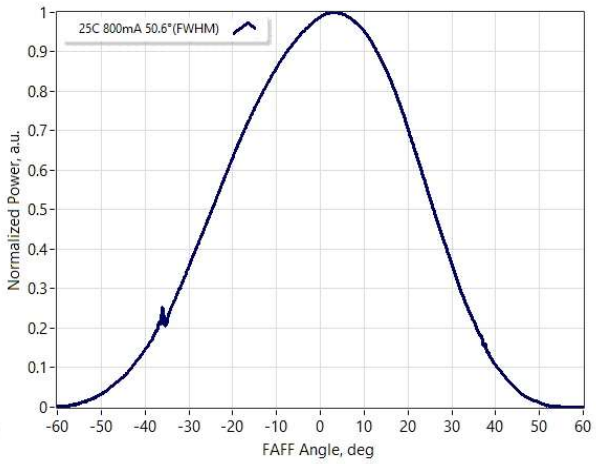
Optical Spectra (res. 10pm)



Slow Axis Far Field



Fast Axis Far Field



Absolute Maximum Ratings

Parameter	Min	Max	Unit
Forward Current		1400	mA
Reverse Voltage		2	V
Operating Temperature (above dew point)	10	85	°C
Storage Temperature (in original hermetically sealed package)	-40	85	°C
Soldering Temperature (5 sec.max)		250	°C

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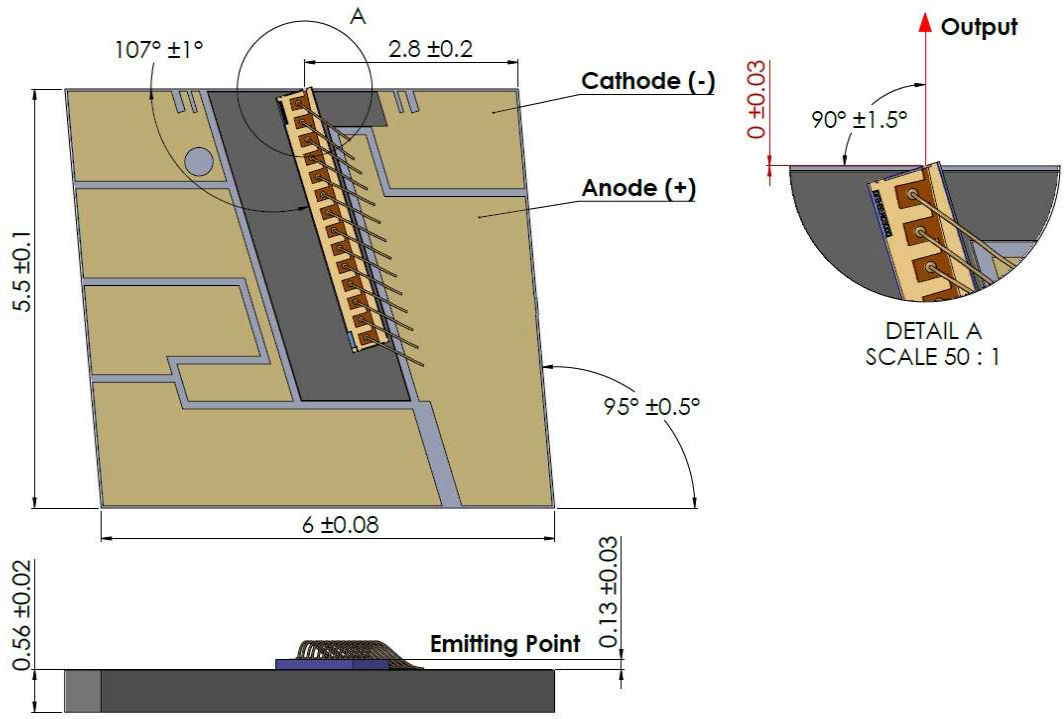
Dimensions (in mm)



Safety and Operating Instructions

The laser light emitted from this Device is invisible and harmful 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 maximum ratings may cause damage or affect the reliability of the Device.

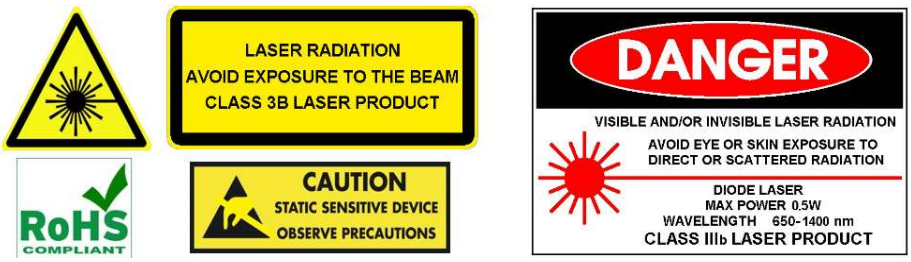
Operating the Device outside of its maximum ratings may cause device failure or a safety hazard. Power supplies used with the Device must be employed such that the maximum forward current cannot be exceeded. A proper heatsink for the Device on thermal radiator is required, sufficient heat dissipation and thermal conductance to the heatsink must be ensured by flux-free soldering. The use of thermal paste is prohibited.

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. The use of optical isolators is mandatory to ensure stable operation by blocking back reflections.

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 chip facets. Any contamination or contact of the chip facet must be avoided.

The performance of the Device (chip-on-carrier, chip on open-heatsink or bare die) is inherently dependent on the assembly process. When properly assembled, the Device can be expected to meet the specified performance characteristics.

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



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Part-number Identification

DFB1250000CC250MXXXX -> 250mW output power at 1250nm peak wavelength, chip on carrier
DFB1250D50CC250MXXXX -> 250mW output power at 1250.5nm peak wavelength, chip on carrier
DFB1330000CC250MXXXX -> 250mW output power at 1330nm peak wavelength, chip on carrier

NOTE: Innolume product specifications are subject to change without notice