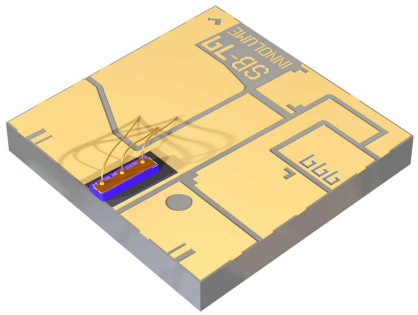
Innolume GmbH
Konrad-Adenauer-Allee 11
44263 Dortmund, Germany

Specification

DFA1310000CC070MXXXX Preliminary

Distributed-Feedback (DFB) Laser Chip on Carrier



Features:

- Output power >70mW ex-facet at 55°C
- Wide temperature range from 0°C to 75°C
- O-band CWDM4 (1270–1330nm) wavelengths
- InAs/GaAs Quantum Dot based diode laser
- Mode-hop-free operation
- Low RIN < –145 dB/Hz
- Superior reliability
- RoHS compliance
- Custom AlN carrier (on request)

Applications:

- Datacom
- CWDM4
- SiPh based transceivers

Recommended Operating Conditions

@ CW, sample is mounted on a copper heatsink

Parameter	Min.	Typ.	Max.	Unit
Heatsink Temperature*	0	55	75	°C
Forward Current		200	300	mA
Output Power**	5		70	mW

* non-condensing environment
** kink-free over the operating range

Characteristics

@ CW, heatsink temperature 55°C, 200mA

Parameter	Min.	Typ.	Max.	Unit
Output Power (Pout)*	60**	70		mW
Forward Current @ Pout*		200	300	mA
Forward Voltage @ Pout*			2	V
Differential resistance		1.5		Ohm
Threshold Current		25	55	mA
Peak Wavelength***	1310	1313	1316	nm
Wavelength Temperature Tunability		100		pm/°C
Wavelength Current Tunability		6		pm/mA
Side-Mode Suppression Ratio (SMSR)	35	55		dB
Instantaneous Linewidth (25°C)		25		kHz
Slow Axis Beam Divergence (FWHM)	7.5	9	10.5	deg
Fast Axis Beam Divergence (FWHM)	49	53	56	deg
Relative Intensity Noise (1MHz-18GHz)		-155	-145	dB/Hz
Polarization		TE		
Polarization Extinction Ratio (PER)	18	20		dB

* within 0–75°C operating range
** min value at 75°C heatsink temperature
*** 1270–1330 nm wavelengths available on request; specifications may slightly vary with wavelength

Chip parameters

Parameter	Min.	Typ.	Max.	Unit
Chip length		1		mm
Back-reflection from Front Facet		0.1	0.5	%
Back-reflection from Back Facet		99		%

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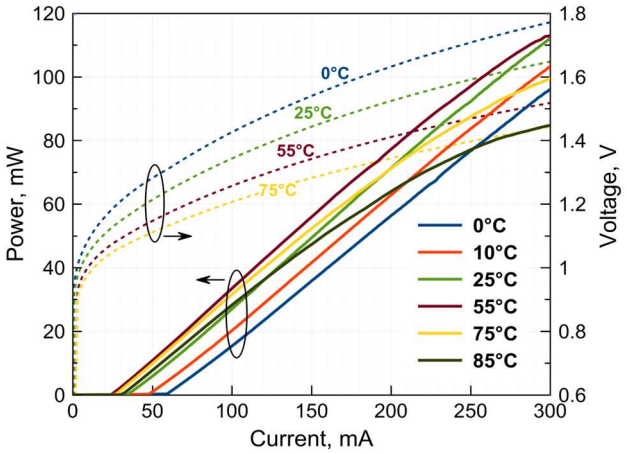
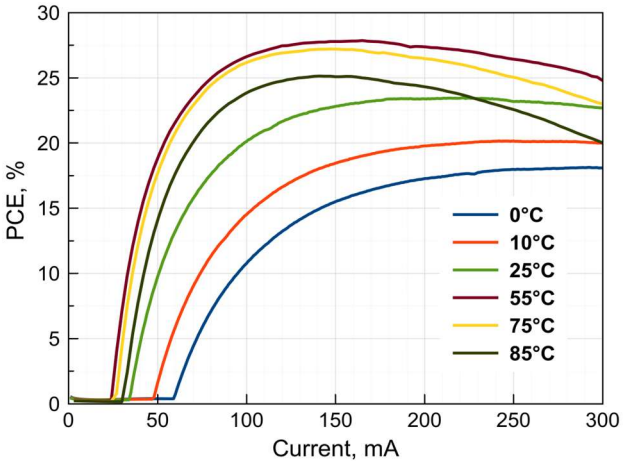
Typical Performance (for reference only)

@ CW, recommended operating conditions

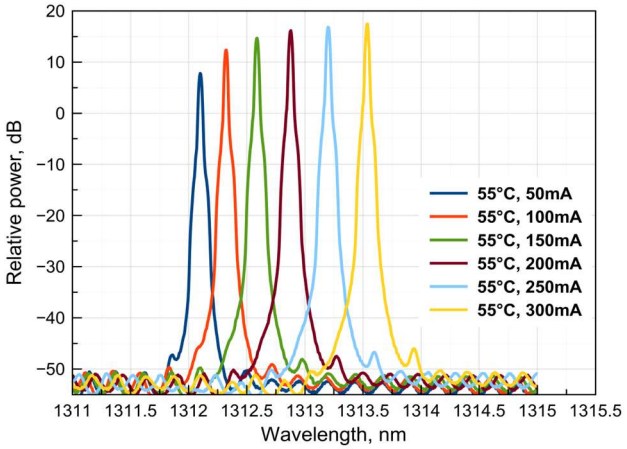
Light-Current-Voltage Characteristics



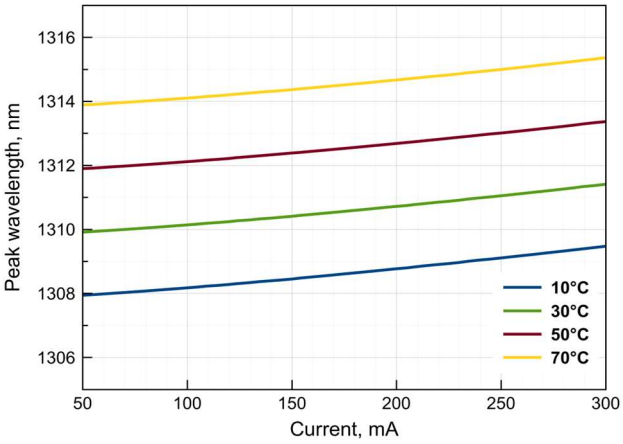
Power Conversion Efficiency (PCE)



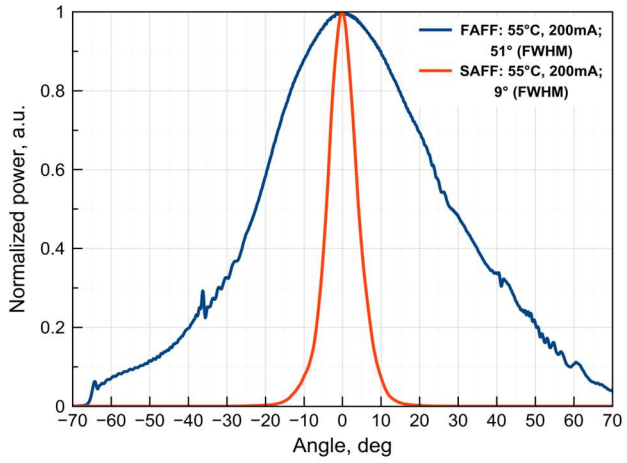
Optical Spectra (res. 20pm)



Peak Wavelength Tuning by Current



Fast and Slow Axis Far Field



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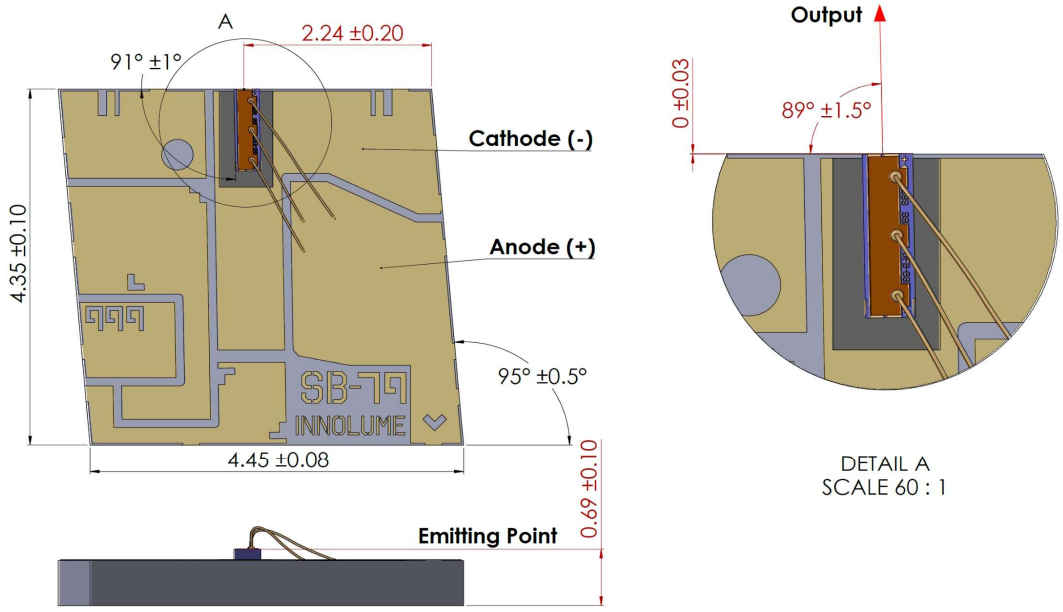
Absolute Maximum Ratings

Parameter	Min	Max	Unit
Forward Current		320	mA
Reverse Voltage		1	V
Operating Temperature (non-condensing environment)	0	85	°C
Storage Temperature (in appropriate packaging)	-40	85	°C
Soldering Temperature (5 sec.max)		250	°C

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 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

DFA1310000CC070MXXXX -> 70mW output power at 1310nm peak wavelength, operation over a wide temperature range, carrier SB-79
DFA1310000CC070MZXXX -> 70mW output power at 1310nm peak wavelength, operation over a wide temperature range, custom AlN carrier

NOTE: Innolume product specifications are subject to change without notice