GREEN PEPPER INTERNATIONAL LIMITED

High-Performance CWDM 70mW CW DFB Laser Chip

High–Power Continuous Wave (CW) Laser Bare Die for CWDM4 & Silicon Photonics

Ref: GPS-CHP-DFB-CWDM-1310-A01

The series features high-power, single-frequency, edge-emitting CWDM DFB laser bare dies engineered for high-speed datacom and photonic integrated systems. Built on an advanced AlGaInAs Multiple Quantum Well (MQW) active structure, this chip series covers the standard CWDM4 wavelength grid (1271nm, 1291nm, 1311nm, 1331nm). Delivering up to 70mW of stable CW optical output power with low threshold current and high Side Mode Suppression Ratio (SMSR ≧ 45 dB), it complies fully with RoHS and Telcordia GR-468 standards, serving as a reliable primary light engine for 100G/400G transceivers and CPO/Silicon Photonics applications.

Key Features

High Output Power & Efficiency
Delivers 70 mW CW output power with low operating current.

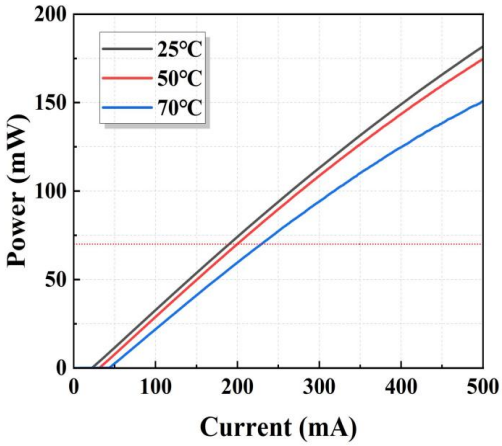
Standard CWDM Grid
Available in 1271 nm, 1291 nm, 1311 nm, and 1331 nm center wavelengths.

Superior Spectral Quality
Excellent single-longitudinal-mode operation with SMSR ≧45 dB, narrow linewidth (<200 kHz), and low RIN (-140 dB/Hz max).

Industrial-Grade Reliability
AlGaInAs MQW design fully qualified under Telcordia GR-468 and compliant with RoHS.

Target Applications:

- **100G / 400G Optical Transceivers:** CWDM4 / FR4 optical modules.
- **Co-Packaged Optics (CPO) & NPO:** External Laser Source (ELS) modules for next-gen AI/Datacom architectures.
- **Silicon Photonics (SiPh) Hybrid Integration:** Light engine for flip-chip bonding on silicon photonics platforms.
- **Data Center Interconnects (DCI) & Sensing:** CW light source for optical networks and test systems.



Optical & Electrical Specifications（T = 25 ℃）

Parameter	Value	Unit	Remarks
CWDM Wavelength Grid	1266～1276 1286～1296 1306～1316 1326～1336	nm	T=25~75℃ P=70mW&CW
Linewidth	≦200	kHz	Lorentz linewidth, T=50℃,CW, If=200mA
Operating Current	250 170	mA	P=70mW, T=75℃&CW P=70mW, T=25℃&CW
Threshold Current	≦100	mA	CW
Side Mode Suppression Ratio(SMSR)	≧45	dB	CW, If=250mA
Relative Intensity Noise（RIN）	<-140	dB/Hz	T=50℃, CW, If=200mA 40GHz
Far Field Angle (Vertical)	26	deg	CW, I_{op}=250mA
Far Field Angle (Horizontal)	16	deg	CW, I_{op}=250mA

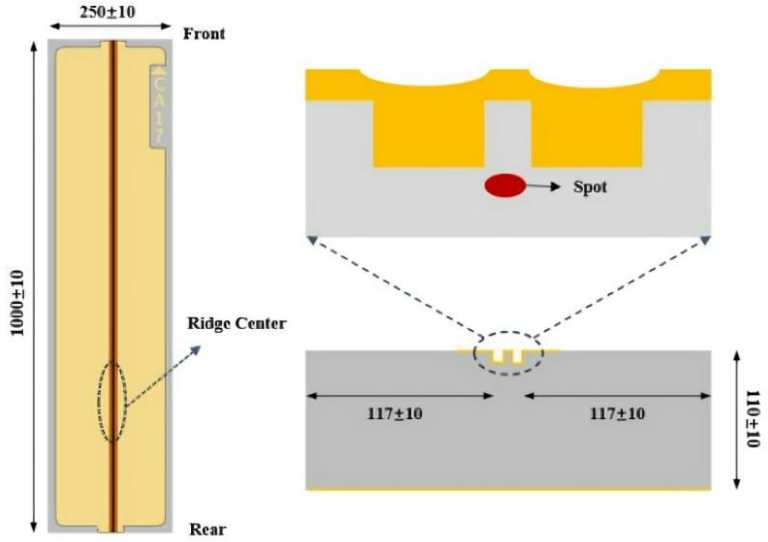
Absolute Maximum Ratings

Parameter	Value
Operating Temp.	-5～+75℃
Storage Temp.	-40~+85℃
Laser Forward Current （I_F）	500mA
Laser Reverse Voltage （V_R）	2V
Allowable Optical Output Power	200mW
ESD(HBM)	1000V

***Note：** Stresses exceeding absolute maximum ratings may cause permanent damage to the device. Functional operation is not guaranteed under these conditions. Prolonged exposure to maximum ratings may affect reliability. These ratings apply only after proper bonding to a heat sink; applying current to bare chips may cause damage.*

Bare Chip Dimensions (Unit: μm)

Parameter	Value
Chip width	250±10 μm
Chip length	1000±10 μm
Chip Height	110 ± 10 μm
Chip dimensions （L × H × W）	1000 × 250 × 110 μm³



Note： ***"L × H × W" denotes the bare chip size excluding any external bonding pads or protective layers.***

Customized COC Packaging Available

Chip-on-Carrier (COC) configuration is available upon request. Custom carrier dimensions, pad layouts, and substrate materials can be fully tailored to meet your system requirements.

- Laser Classification: This product is classified as a Class 1b - IIIb laser device (emits invisible laser radiation, wavelength range: 1266.5nm - 1345.5nm, near-infrared spectrum).
- Compliance Standards: Fully complies with 21 CFR1040.10 and 21 CFR1040.11 (U.S. FDA laser product safety regulations) for radiation limits and labeling requirements.
- Eye Safety Warning: Do not expose eyes directly to the laser beam during operation — invisible near-infrared radiation can cause irreversible damage to the retina without triggering eye blink reflexes.
- Hazard Prevention: Use only the specified controls and operating procedures (e.g., laser safety goggles, beam enclosures) to limit radiation exposure;unauthorized modifications to the device may increase safety risks.



