GREEN PEPPER INTERNATIONAL LIMITED

1310nm 350mW CW DFB Laser Bare Die

350mW | 100kHz | SMSR ⩾40dB | RIN –150dB/Hz

High–Power Narrow–Linewidth Laser Source for CPO / NPO | Silicon Photonics | ELS | Optical Engines

Ref: GPS-CHP-DFB-1310-A01

The 1310nm 350mW DFB Laser Chip is an ultra-high-power, single-frequency edge-emitting laser bare die specifically engineered for next-generation photonic integrated systems. Built on an advanced AlGaInAs Multiple Quantum Well (MQW) active structure, this chip delivers up to 350mW of stable CW optical output power with narrow linewidth and high Side Mode Suppression Ratio (SMSR).Designed to meet strict Telcordia GR-468 reliability requirements, it serves as an ideal high-power Light Engine / External Laser Source (ELS) for hybrid integration, flip-chip bonding, and co-packaged optics (CPO) architectures.

Key Features

Ultra-High CW Output Power
Up to 350mW continuous optical output power under 1000mA forward drive.

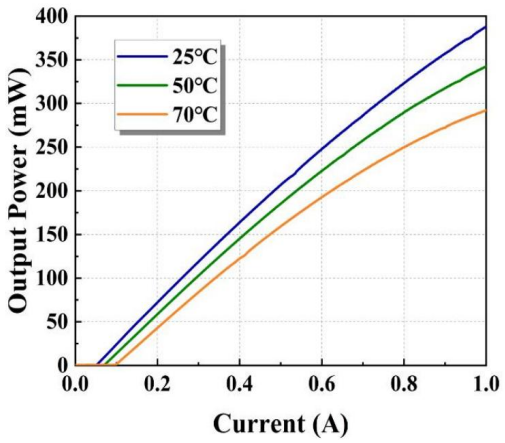
Advanced Quantum Well Structure
AlGaInAs MQW edge-emitting ridge structure optimized for low threshold current and high slope efficiency.

Excellent Spectral Quality
Single-longitudinal-mode operation with SMSR ≧ 40 dB and ultra-narrow linewidth (100 kHz typical).

Industrial-Grade Reliability
Full RoHS compliance and engineered in compliance with Telcordia GR-468 qualification standards.

Target Applications:

- **Co-Packaged Optics (CPO) & NPO:**
  High-power External Laser Source (ELS) modules for next-gen AI/Datacom optical interconnects.
- **Silicon Photonics (SiPh) Hybrid Integration:**
  Primary light engine for flip-chip bonding and heterogeneous integration on silicon photonic platforms.
- **High-Power CW Laser Sources:**
  Seed laser or primary source for high-budget optical networks, optical sensing, and test & measurement systems.



Optical & Electrical Specifications（T = 25 ℃）

Parameter	Value	Unit	Remarks
Center Wavelength	1309～1313	nm	Tc=25℃, 350mW, CW
Optical Output Power	**350**	**mW**	**Tc=25℃&CW 1000mA**
Linewidth	100	kHz	Tc=25℃&CW
Threshold Current	100	mA	F=200mA,CW
Backlight Power (non-linear)	5	mW	Tc=25℃&CW 1000mA
Relative Intensity Noise (RIN)	-150	dB/Hz	
Side Mode Suppression Ratio(SMSR)	≧40	dB	
Vertical Far-field	24	deg	CW
Horizontal Far-field	12	deg	CW

Note：Unless otherwise specified, the chip operating temperature is 25 ℃. All listed parameters represent beginning-of-life (BOL) performance unless explicitly indicated.

**** Optical power is measured by solderring laser chip onto a Cu heatsink.***

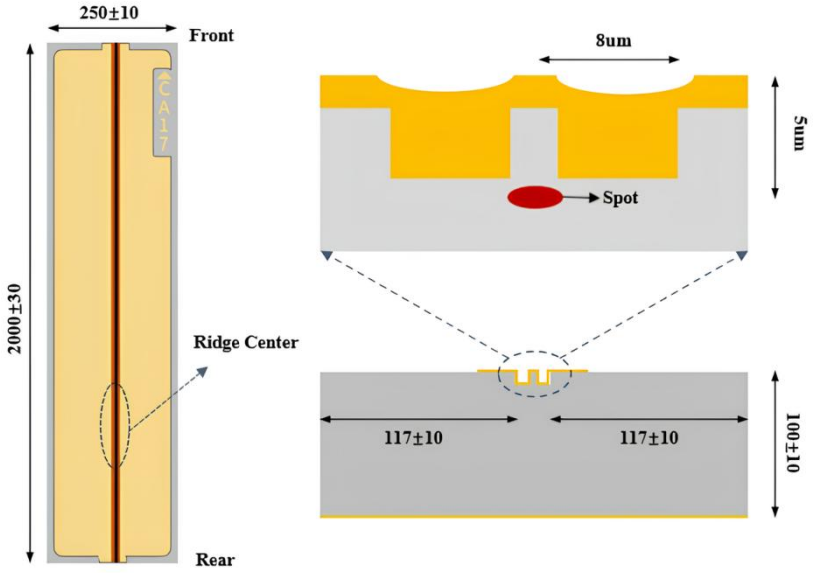
Absolute Maximum Ratings

Parameter	Value
Operating Temp.	-5～+75℃
Storage Temp.	-40~+85℃
Laser Diode Forward Current (I_F)	1500mA
Laser Diode Reverse Voltage (V_R)	2V
Allowable Optical Output Power	450mW
ESD(HBM)	500V

Note：Stressing the device beyond the Absolute Maximum Ratings may cause permanent damage or severely impact long-term reliability.

Bare Chip Dimensions (Unit: μm)

Parameter	Value
Chip width	250±10 μm
Chip length	2000±30 μm
Chip thickness	100 ± 10 μm
Chip dimensions （L × H × W）	2000 × 250 × 100 μm³



The performance specifications, test data, illustrations, and other technical information contained in this datasheet are intended to provide general guidance and are typical values only. These values do not constitute a guarantee and shall not be deemed part of any contract unless specifically confirmed in writing by Green Pepper International. In line with Green Pepper International policy of continuous product improvement, specifications are subject to change without prior notice.

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.

- These laser components emit invisible radiation within the wavelength range of 1270 nm - 1330 nm.
- Direct eye exposure to the radiation must be strictly avoided.
- This laser component is non-serviceable. No attempt should be made to disassemble, repair, or modify the component.
- Caution – Any use of controls, adjustments, or performance of procedures beyond those specified in this document may result in hazardous radiation exposure.
- This laser component is intended solely for incorporation into a finished laser product. The finished laser product must undergo evaluation and certification to meet relevant laser safety standards.



