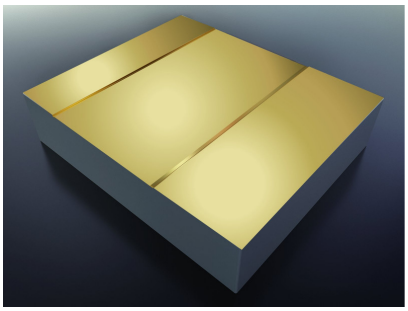
ML1941

1470 nm high-power laser chip for CW operation

Overview

ML1941 is a high-performance multi-mode laser chip designed for applications requiring high-power free-space laser beams at 1470 nm. This product is an unmounted chip (bare die), which is suitable for CW operation, given that the mounting and packaging can handle the thermal load. Due to the inherent thermal sensitivity of this laser product, proper cooling must be ensured during operation.



Applications

Defense	Industrial	Medical
Eye-safe range-finding	Materials processing Optical pumping	Aesthetic treatments Low-intensity laser therapy

Electro-optical Characteristics

Parameter	Symbol	Typical value	Unit
Peak Wavelength	λ	1470 ± 20	nm
Optical Output Power (peak power)	P_{OPT}	1.5	W
Operating Current	I_{OP}	4.2	A
Operating Voltage	V_{OP}	1.35	V
Slope Efficiency	η	0.38	W/A
Threshold Current	I_{TH}	0.22	A
Wavelength Temperature Coefficient	$\Delta\lambda/\Delta T$	0.6	nm/K
Spectral Width	$\delta\lambda$	10	nm
Parallel Beam Divergence (FWHM)	$\theta\parallel$	8	°
Perpendicular Beam Divergence (FWHM)	$\theta\perp$	32	°

All above values are typical for a mounted laser under CW operation @ 20°C.

Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
LD Reverse Voltage	V_{RLD}	2	V
LD Forward Current	I_{FLD}	4.4	A
Operating Temperature	T_{OP}	0…30 [1]	°C
Storage Temperature	T_{STG}	-40…85	°C

[1] A non-condensing environment should be ensured over the useful temperature range.

Mechanical Specification

Parameter	Symbol	Value	Unit
Cavity Length	L	1000	µm
Chip Width	W	500	µm
Emitter Width	W_e	100	µm
Chip Thickness	H	105	µm

Safety Information

- The laser light emitted from this laser diode is invisible and harmful to the human eye. Avoid eye and skin exposure to the beam, both direct and reflected.
- Products are subject to the risks normally associated with sensitive electronic devices including static discharge, transients, and overload. Please ensure ESD protection prior to handling the products.
- These Modulight products are not intended for use in systems where product malfunction can reasonably be expected to result in personal injury.

Peak power and wavelength are for safety analysis only, not to present device performance.

Liability note