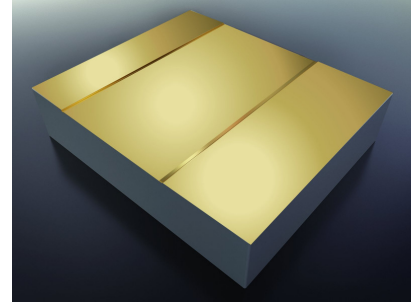


ML1456

1550 nm high-power laser chip for pulsed operation

Overview

ML1456 is a high-performance multi-mode 1550 nm laser designed for applications requiring high-power free-space laser beams at eye-safe wavelengths. This product is an unmounted chip (bare die), which is suitable for pulsed operation. Due to the inherent thermal sensitivity of this laser product, proper cooling must be ensured during operation. For CW operation, please refer to product ML1543.



Applications

Defense

Eye-safe range-finding
Laser radar

Industrial

Distance measurement
Speed detectors

Electro-optical Characteristics

Parameter	Symbol	Typical value	Unit
Peak Wavelength	λ	1550 ± 15	nm
Optical Output Power (peak power)	P_{OPT}	4.5	W
Operating Current	I_{OP}	15	A
Operating Voltage	V_{OP}	1.3	V
Slope Efficiency	η	0.34	W/A
Threshold Current	I_{TH}	0.65	A
Wavelength Temperature Coefficient	$\Delta\lambda/\Delta T$	0.6	nm/K
Spectral Width	$\delta\lambda$	10	nm
Parallel Beam Divergence (FWHM)	$\theta_{ }$	7	°
Perpendicular Beam Divergence (FWHM)	θ_{\perp}	33	°

Above values are typical for pulsed operation (150 ns pulse duration, 3 kHz repetition rate, 20°C.)

Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
LD Reverse Voltage	V_{RLD}	2	V
LD Forward Current	I_{FLD}	18	A
Operating Temperature	T_{OP}	0...30	°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.

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