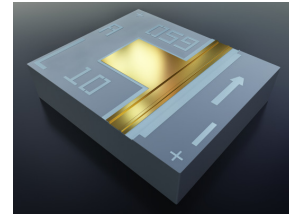


ML1007

1550 nm Fabry-Pérot Laser Diode for 2.5 Gb/s

Overview

ML1007 is a 1550 nm laser chip with Modulight's proprietary design. The excellent high temperature behaviour of the chip makes it suitable for uncooled transmitters and transceivers up to 2.5 Gb/s. The products are shipped as bare dies.



Applications

Communications

SONET/SDH transmitters and transceivers
 ATM links
 Fiber-in-the-loop
 Datacom transceivers
 Measurement and instrumentation

Electro-optical Characteristics

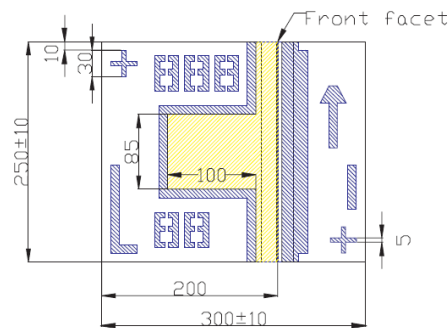
| Parameter | Symbol | Min | Typical value | Max | Unit | Test condition* |
|--------------------------------------|--------------------------|------|---------------|------|----------|---------------------------------|
| Optical Output Power | P_{OPT} | 5 | - | - | mW | -40~85°C |
| Threshold Current | I_{TH} | - | 9 | 14 | mA | 25°C |
| | | - | 23 | 35 | mA | 85°C |
| Operating Current | I_{OP} | - | 27 | 30 | mA | 25°C, $P_{OPT}=5mW$ |
| | | - | 48 | 60 | mA | 85°C, $P_{OPT}=5mW$ |
| Operating Voltage | V_{OP} | - | 1.1 | 1.4 | V | 25°C, $P_{OPT}=5mW$ |
| Slope Efficiency | η | 0.22 | 0.29 | - | W/A | 25°C, $P_{OPT}=5mW$, 1-7 mW |
| | | 0.14 | 0.19 | - | W/A | 85°C, $P_{OPT}=5mW$, 1-7 mW |
| Peak Wavelength | λ | 1530 | 1550 | 1570 | nm | 25°C, $P_{OPT}=5mW$ |
| | | 1485 | - | 1610 | nm | -40~85°C, $P_{OPT}=5mW$ |
| Wavelength Temperature Coefficient | $\Delta\lambda/\Delta T$ | - | 0.65 | - | nm/K | -40~85°C, $P_{OPT}=5mW$ |
| Spectral Width (FWHM)** | $\Delta\lambda$ | - | 1.3 | 2.5 | nm | 25°C, $P_{OPT}=5mW$ |
| Parallel Beam Divergence (FWHM) | $\theta_{ }$ | 18 | 23 | 35 | ° | 25°C, $P_{OPT}=5mW$ |
| Perpendicular Beam Divergence (FWHM) | θ_{\perp} | 30 | 44 | 50 | ° | 25°C, $P_{OPT}=5mW$ |
| Serial Resistance | R_S | - | 8 | - | Ω | 25°C, $P_{OPT}=5mW$, 1-7 mW |
| Modulation bandwidth *** | f_{-3dB} | 6 | - | - | GHz | 25°C, $I_{OP}=I_{TH}+16mA$ |
| | f_{-3dB} | 4 | - | - | GHz | 25°C, $I_{OP}=I_{TH}+16mA$ |

- * All temperatures refer to heatsink temperature
- ** -20 dB noise floor
- *** Chip-on carrier, ground-signal-ground microwave probe

Absolute Maximum Ratings

| Parameter | Symbol | Rating | Unit |
|-----------------------------|-----------|--------|------|
| Optical Output Power | P_{OPT} | 20 | mW |
| LD reverse voltage | V_{RLD} | 2 | V |
| LD forward current | I_{FLD} | 200 | mA |
| Operating temperature range | T_{OP} | -40~85 | °C |
| Storage temperature range | T_S | -40~85 | °C |

Mechanical Specification



All dimensions in microns
 Chip thickness 100 μm
 Polarity: p-contact (anode) up

Safety Information

- The laser light emitted from this laser diode is invisible and potentially 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

This document is sole property of Modulight, Inc. No part of this document may be copied without written acceptance of Modulight, Inc. All statements related to the products herein are believed to be reliable and accurate. However, the accuracy is not guaranteed and no responsibility is assumed for any inaccuracies or omissions. Modulight, Inc. reserves the right to make changes in the specifications at any time without prior notice.