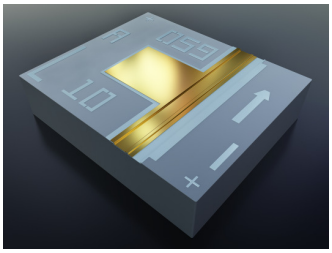
ML1000

1310 nm Fabry-Pérot Laser Diode for 1.25 Gb/s & 2.5 Gb/s

Overview

ML1000 is a laser chip with Modulight's high-performance RWG design. The excellent high temperature behaviour of the chip makes it suitable for low-cost uncooled short and intermediate reach applications in access and enterprise networks. The products are shipped as bare dies.



Applications

Communications

Gigabit Ethernet transceivers
1X/2X Fibre Channel
SONET OC-48 SR
SDH STM-I-16

Electro-optical Characteristics

Parameter	Symbol	Min	Typical value	Max	Unit	Test condition*
Optical Output Power	P_{OPT}	7	-	-	mW	-40~85°C
Threshold Current	I_{TH}	-	10	14	mA	25°C
	I_{TH}	-	21	28	mA	85°C
Operating Current	I_{OP}	-	23	30	mA	25°C, P_{OPT}=5mW
	I_{OP}	-	37	50	mA	85°C, P_{OPT}=5mW
Operating Voltage	V_{OP}	-	1.1	1.5	V	25°C, P_{OPT}=5mW
Slope Efficiency	η	0.3	0.38	-	W/A	25°C, P_{OPT}=5mW, 1-7 mW
	η	0.22	0.29	-	W/A	85°C, P_{OPT}=5mW, 1-7 mW
Peak Wavelength	λ	1290	1310	1330	nm	25°C, P_{OPT}=5mW
	λ	-	-	1355	nm	-40~85°C, P_{OPT}=5mW
Wavelength Temperature Coefficient	$\Delta\lambda/\Delta T$	-	0.46	-	nm/K	-40~85°C, P_{OPT}=5mW
Spectral Width (FWHM)**	$\Delta\lambda$	-	0.85	2	nm	25°C, P_{OPT}=5mW
Parallel Beam Divergence (FWHM)	$\theta\|\|$	15	21	30	°	25°C, P_{OPT}=5mW
Perpendicular Beam Divergence (FWHM)	$\theta\perp$	-	38	45	°	25°C, P_{OPT}=5mW
Serial Resistance	R_S	-	5.2	-	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

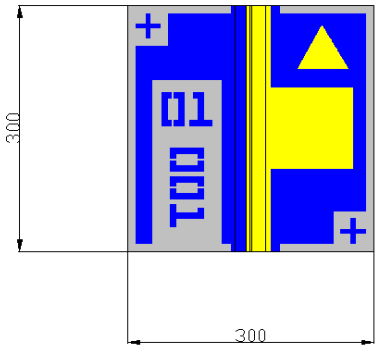
*** Chip-on carrier, ground-signal-ground microwave probe

Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Optical Output Power	P_{OPT}	30	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

[1] A non-condensing environment is required for operation temperatures below 10 °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