ML5138

modulight

Modulight's ML5138 is a fiber Bragg grating (FBG) wavelength stabilized 976 nm pump laser diode in an industry standard 14-pin butterfly package including TEC for cooling, thermistor and photodiode. The laser delivers 150 mW into a single mode optical fiber.



Applications

Pump laser for erbium-doped fiber amplifiers (EDFAs) for dense wavelength division multiplexing (DWDM), CATV, and other communication applications

Electro-optical Characteristics [1]

Parameter	Symbol	Min.	Typical	Max.	Unit
Central Wavelength [2]	λ	970	976	980	nm
Spectral Width	$\Delta\lambda$	-	-	1.0	nm
Wavelength Temperature Coefficient	$\Delta\lambda/\Delta T$	-	-	0.01	nm/°C
Optical Output Power	P_{OPT}	-	150	-	mW
Operating Current	I_{OP}	-	-	350	mA
Operating Voltage	V_{OP}	-	-	1.9	V
Threshold Current	I_{TH}	-	70	100	mA
Monitor current	I_m	0.2	-	1.0	mA

[1] If not otherwise stated, all above values are for operation at room temperature, at P_{OPT} = 150 mW.

[2] Customer-selectable wavelength within the specified range.

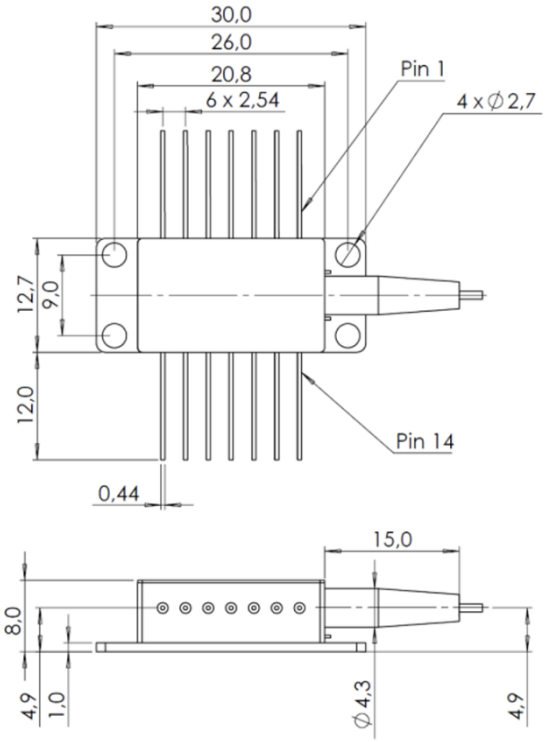
Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Optical Output Power	P_{OPT}	175 [1]	mW
LD Forward Current	I_{FLD}	450	mA
LD Reverse Voltage	I_{RLD}	2	V
LD Reverse Current	I_{RLD}	10	µA
Operating Temperature Range	T_{OP}	-5...75 [2]	°C
Storage Temperature Range	T_{ST}	-40...85	°C

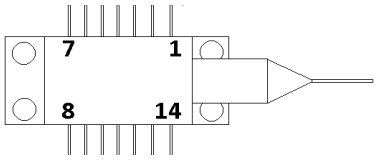
[1] Please use automatic power control (APC) circuit setup for operating the laser.

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

Mechanical Specification



PIN #	Function	PIN #	Function
1	TEC+	8	-
2	Thermistor	9	-
3	PD (anode)	10	LD+
4	PD (cathode)	11	LD-
5	Thermistor	12	-
6	-	13	Case
7	-	14	TEC-



All dimensions are millimeters (mm).

TEC and Thermistor

Parameter	Symbol	Value	Unit
Thermistor resistance @25°C	R_{TH}	10±1%	kΩ
Thermistor temperature coefficient	β	3400±5%	-
TEC current, maximum	$I_{TEC,\ max}$	2.9	A
TEC voltage, maximum	$V_{TEC,\ max}$	2.9	V

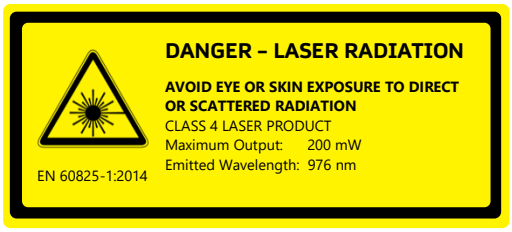
Optical Fiber

HI1060 type fiber with bare fiber termination

Parameter	Symbol	Value	Unit
Cutoff wavelength	λ_{CO}	920±50	nm
Maximum attenuation @980 nm	α_{MAX}	2.1	dB/km
Cladding diameter	$\varnothing_{CLAD}$	125	µm
Coating diameter	$\varnothing_{COAT}$	245	µm
Mode field diameter	MFD	5.9±0.3	µm

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

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RoHS compliance

The product complies with EU RoHS 2 (Directive 2011/65/EU) and China RoHS II (Management Methods for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products)