ML1216

1430 nm FP Laser Diode in 5.6 mm TO-can

Overview

Modulight's ML1216 series are high-performance Fabry-Pérot (FP) laser diodes in 5.6 mm TO-cans. The lasers emit single transverse mode at 1430 nm wavelength. The hermetic TO-can package includes an InGaAs monitor photodiode for feedback loop.

Applications

Communications

Digital optical communication networks

Electro-optical Characteristics [1]

Parameter	Symbol	Min	Typical	Max	Unit
Central Wavelength (P_{OP} = 3mW)	λ	1420	1430	1450	nm
Central Wavelength (P_{OP} = 3mW)	$\lambda_{20...70}$	1400	-	1470	nm
Rated Optical Power (kink-free)	P_R	3	-	-	mW
Operating Current (25°C, P_{OP} = 3mW)	I_{OP}	-	21 [23]	40	mA
Operating Current (60°C, P_{OP} = 3mW)	$I_{OP,60}$	-	29 [32]	60	mA
Operating Voltage (P_{OP} = 3mW)	V_{OP}	-	1.1	1.6	V
Slope Efficiency [2] (25°C, P_{OP} = 3mW)	η	0.16	0.32 [0.27]	-	W/A
Slope Efficiency [2] (65°C, P_{OP} = 3mW)	η	0.12	0.29 [0.24]	-	W/A
Serial resistance [2] (25°C, P_{OP} = 3mW)	R_s	-	6	-	Ω
Threshold Current [3]	I_{TH}	-	12	18	mA
Threshold Current [3] (60°C)	$I_{TH,60}$	-	19	33	mA
Spectral Width [4]	$\delta\lambda$	-	0.9	4	nm
Wavelength - Temp. Coefficient	$\Delta\lambda/\Delta T$	-	0.12	-	nm/K
Parallel Beam Divergence (FWHM) [5]	$\theta\parallel$	-	21 [6]	-	°
Perpendicular Beam Divergence (FWHM) [5]	$\theta\perp$	-	36 [13]	-	°
Modulation Bandwidth	f_{-3dB}	-	2	-	GHz
Monitor current	I_m	100	-	1000	µA
Monitor dark current	I_d	-	0.1	1.0	µA
Monitor capacitance	C_m	-	5	10	pF
Tracking error (Im=constant, P_o=3mW@25°C)	γ	-1	-	1	db
Focal length[6]	D_f	-	[6.25]	-	mm
Fiber coupling efficiency (SM fiber)		-	[7.5]	-	%

Unless otherwise noted, the above values represent operation @ 25°C. All temperatures refer to case temperature, T_C.

[1] Where indicated, values in brackets [ ] apply for ball lens cap type

[2] P_{HI} = 1 mW, P_{LO} = 3 mW

[3] 2nd derivative method

[4] RMS, -20 dB

[5] Full Width at Half Maximum

[6] Distance from the reference plane (see mechanical specification) to focal point. Applicable to ball lens cap type only.

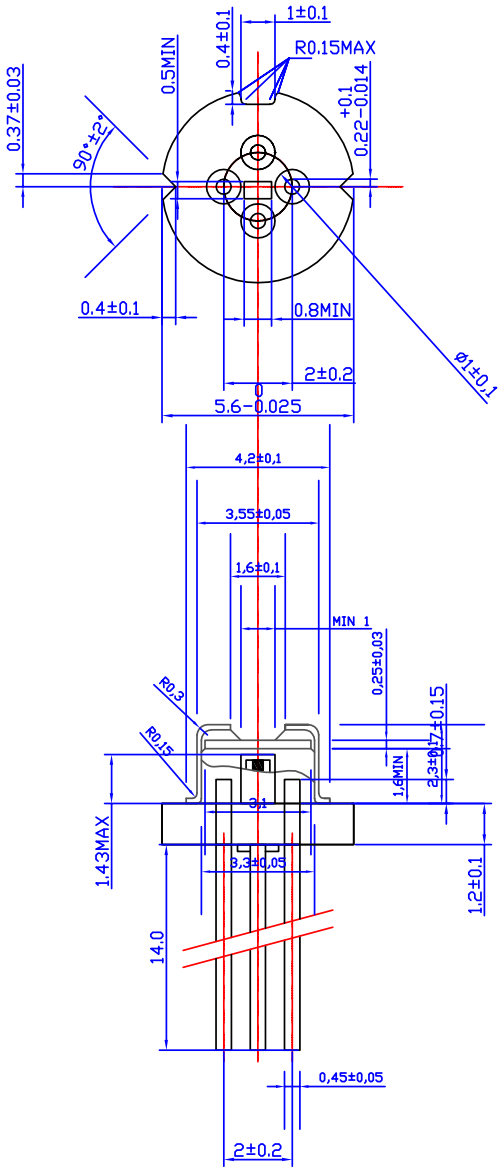
Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Optical Output Power	P_{OP}	20	mW
LD Reverse Voltage	V_{RLD}	2	V
LD Forward Current	I_{FLD}	150	mA
PD reverse voltage	V_{RPD}	20	V
PD forward current	I_{FPD}	10	mA
Lead soldering temperature (<10 s)	T_{SLD}	260	°C
Operating case temperature	T_c	-40-60°C	°C
Storage temperature	T_{STG}	-40-85°C	°C

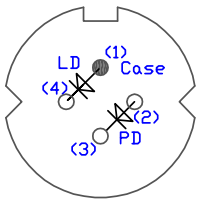
Ordering information

Product code	Cap type	Pin layout
ML1216	Ball lens	3
ML1252	Ball lens	1
ML1451	Ball lens	2
ML1452	Flat window	1
ML1453	Flat window	2
ML1454	Flat window	3

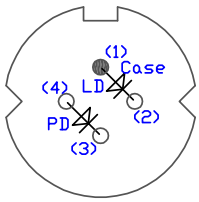
Mechanical Specification ML1452, ML1453, ML1454



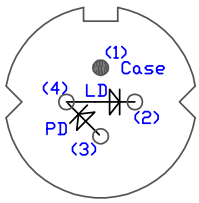
Bottom view
pin layout



Pin layout 1

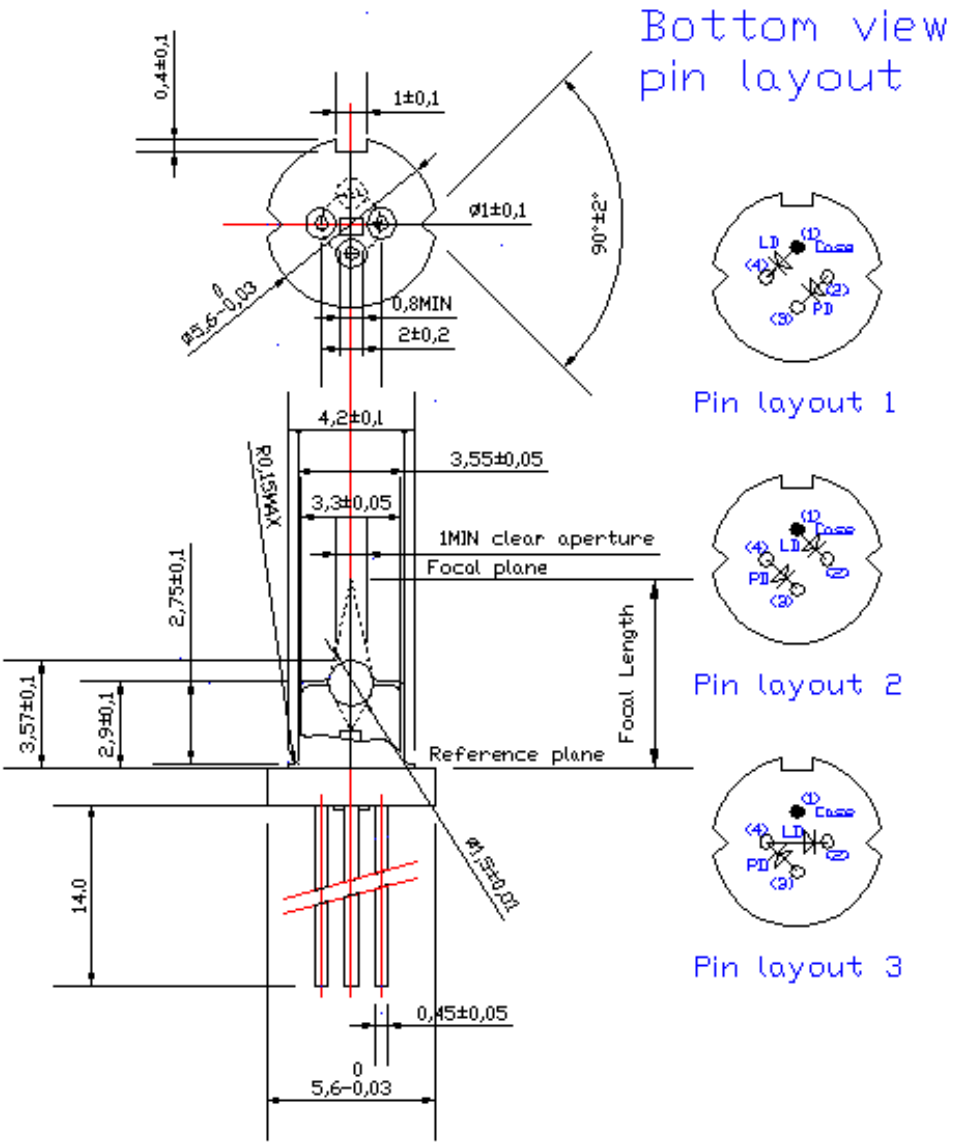


Pin layout 2



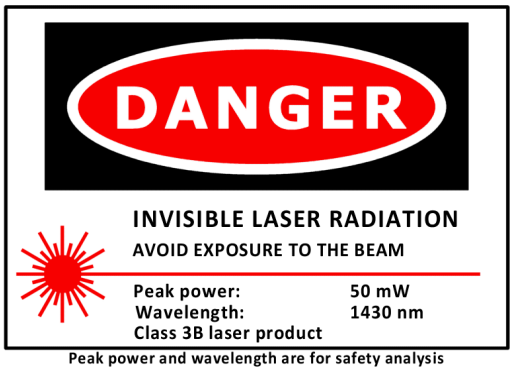
Pin layout 3

Mechanical Specification ML1216, ML1252, ML1451



Safety Information

- The laser light emitted from this laser device 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