

# ML1223 series

1550 nm FP coaxial laser diode module

## Overview

The ML1223 series is comprised of 1550 nm FP coaxial laser diode modules for analog applications. The lasers have a low threshold current and a high output power. The ML1223 series is available with optical isolators, various connectors and different flange options. Please check the section on ordering information for details on the different options.



## Applications

### Communications

Analog applications

## Electro-optical Characteristics

Parameter	Symbol	Min	Typical value	Max	Unit	Test condition
Threshold Current	$I_{TH}$	-	11	20	mA	
Operating Current	$I_{OP}$	-	40	60	mA	$P_{OPT}=3mW, CW$
Optical Output Power	$P_{OPT}$	2	3	-	mW	$I_{op} = I_{th} + 30mA$
Operating Voltage	$V_{OP}$	-	1.2	1.8	V	$P_{OPT}=3mW, CW$
Slope Efficiency	$\eta$	0.1	-	0.17	W/A	$T_c = -20^{\circ}C$
	$\eta$	0.09	-	0.15	W/A	$T_c = +25^{\circ}C$
	$\eta$	0.05	-	-	W/A	$T_c = +85^{\circ}C$
Central Wavelength	$\lambda$	1520	1550	1580	nm	$P_o = 3mW, CW$
Wavelength Temperature Coefficient	$d\lambda/dT$	-	0.08	-	nm/K	$CW, -20\sim 85^{\circ}C$
Spectral Width	$\Delta\lambda$	-	-	4	nm	-20 dB
Monitor Current	$I_m$	0.1	-	-	mA	$V_{RPD}=5V, P_{OPT}=3mW$
Monitor Dark Current	$I_{md}$	-	-	0.1	$\mu A$	$V_{RPD}=5V$
LD Series Resistance	$R_{LD}$	4	-	8	$\Omega$	
Tracking Error*	TE	-1.0	-	1.0	dB	$T_c=25^{\circ}\sim 85^{\circ}C$
Third Order Intermodulation Distortion**	IMD3	-	-	-55	dBc	
Relative Intensity Noise	RIN	-	-	-150	dB/Hz	$P_o = 3mW, CW, f=1.8GHz$
Optical Isolation	Iso	30	-	-		

\*  $CW, APC(25^{\circ}C)=3mW, TE=10\log(P_o(T_c)/P_o(25^{\circ}C))$

\*\* 2 tone, RF input power = 0dBm,  $f_1 = 1.8GHz, f_2 = 1.802GHz$

### Absolute Maximum Ratings

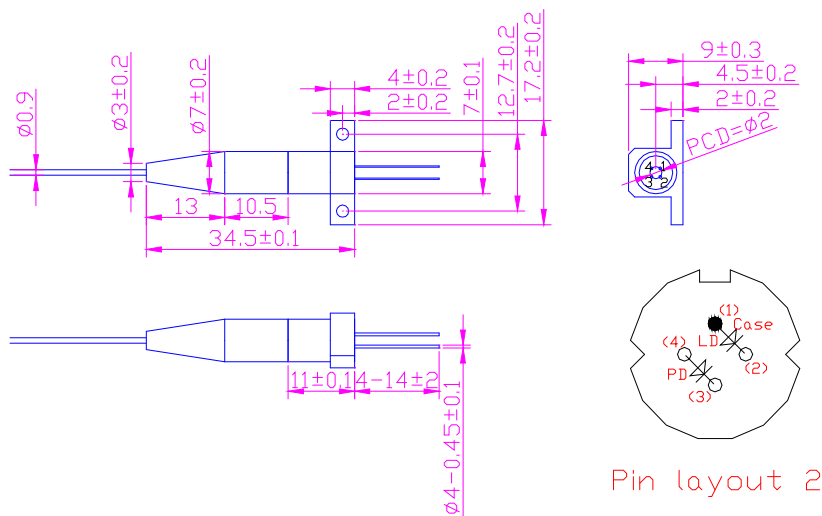
Parameter	Symbol	Min	Max	Unit
Optical Output Power	$P_{OPT}$	-	7	mW
LD Reverse voltage	$V_{RLD}$	-	2	V
PD Reverse voltage	$V_{RPD}$	-	20	V
Operating Temperature	$T_{OP}$	-20	+85	°C
Storage Temperature	$T_S$	-40	+85	°C
Soldering Temperature	$T_{SOL}$	-	260	°C/10s

### Optical Fiber Specification

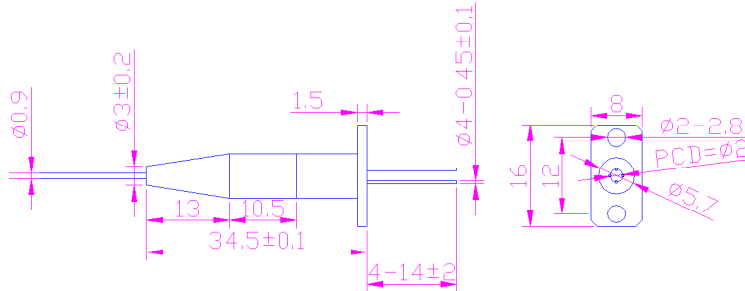
Parameter	Specification	Unit
Mode Field Diameter	$9.5 \pm 1$	$\mu\text{m}$
Cladding Diameter	$125 \pm 2$	$\mu\text{m}$
Maximum Cladding Noncircularity	2	%
Maximum Core/Cladding Noncircularity	1.6	%
Outer Diameter	$0.9 \pm 0.1$	mm
Minimum Fiber Bending Radius	30	mm
Fiber Length	$1000 \pm 50$	mm

### Mechanical Specification and PIN layout

#### Dimensions with Horizontal Flange:



### Dimensions with Horizontal Flange:



### Ordering Information

When ordering ML1223 series lasers, please specify a configuration from selection below:



### 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.

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