

ML1010 series

DFB coaxial laser diode module for analog applications

Overview

The ML1010 series is comprised of 1310 nm DFB coaxial laser diode modules for analog applications. The lasers have a low threshold current and a high SMSR. The ML1010 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

Defense	Communications
Perimeter security	Hybrid Fibre Coax (HFC) RF-over-fibre Wireless Repeaters Analogue applications

Electro-optical Characteristics

Parameter	Symbol	Min	Typical value	Max	Unit	Test condition
Threshold Current	I_{TH}	-	7	15	mA	
Operating Current	I_{OP}	-	40	60	mA	$P_{OPT}=3mW, CW$
Optical Output Power	P_{OPT}	2	3	6	mW	$I_{OP}=40mA$
Operating Voltage	V_{OP}	-	1.5	1.8	V	$P_{OPT}=3mW, CW$
Slope Efficiency	η	0.1	-	0.17	W/A	$CW, T_C=-20^{\circ}C$
		0.09	-	0.15	W/A	$CW, T_C=25^{\circ}C$
		0.05	-	-	W/A	$CW, T_C=85^{\circ}C$
Peak Wavelength	λ_c	1300	1310	1320	nm	$P_{OPT}=3mW, CW$
Wavelength Temperature Coefficient	$\Delta\lambda/\Delta T$	-	0.08	-	nm/K	$CW, -20\sim 85^{\circ}C$
Spectral Width	$\Delta\lambda$	-	-	1	nm	-20 dB
Side-Mode Suppression Ratio	SMSR	35	-	-	dB	$P_{OPT}=3mW, CW$
Monitor Current	I_m	0.1	-	-	mA	$V_{RPD}=5V, P_{OPT}=3mW$
Monitor Dark Current	I_{md}	-	-	0.1	μA	$V_{RPD}=5V$
LD Series Resistance	R_{LD}	4	-	8	Ω	
Tracking Error *	TE	-1.0	-	1.0	dB	$T_C=25^{\circ}\sim 85^{\circ}C$
Third Order Intermodulation Distortion **	IMD3	-	-	-55	dB	
Relative Intensity Noise	RIN	-	-	-150	dB/Hz	$P_{OPT}=3mW, f=1.8GHz$
Optical Isolation ***	Iso	30/45	-	-	dB	

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

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

*** 30 dB with single-stage isolator, 45 dB with double-stage isolator

Absolute Maximum Ratings

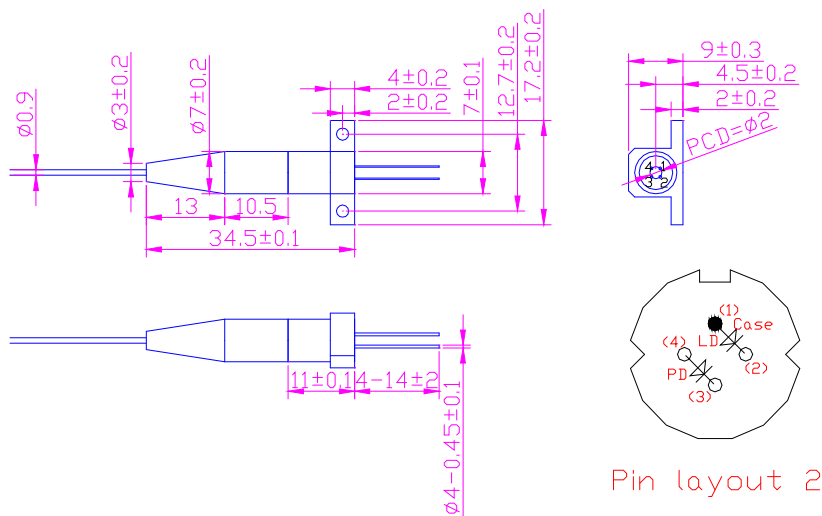
Parameter	Symbol	Min	Max	Unit
Light Output	P _{OPT}	-	7	mW
LD Reverse voltage	V _{RLD}	-	2	V
PD Reverse voltage	V _{RPD}	-	20	V
Operating Temperature	T _{OP}	-20	85	°C
Storage Temperature	T _S	-40	85	°C
Soldering Temperature	T _{SOL}	-	260	°C/10sec

Optical Fiber Specification

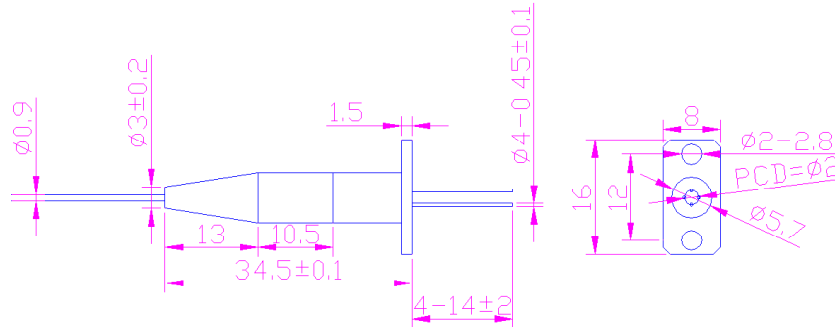
Parameter	Specification	Unit
Mode Field Diameter	9.5±1	µm
Cladding Diameter	125±2	µm
Maximum Cladding Noncircularity	2	%
Maximum Core/Cladding Noncircularity	1.6	%
Outer Diameter	0.9±0.1	mm
Minimum Fibre Bending Radius	30	mm
Fibre Length	1000±50	mm

Mechanical Specification and PIN layout

Dimensions with Horizontal Flange:

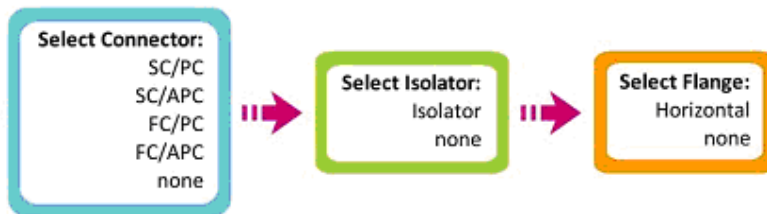


Dimensions with Horizontal Flange:



Ordering Information

When ordering ML1010 series lasers, please specify a configuration from following selection:



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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