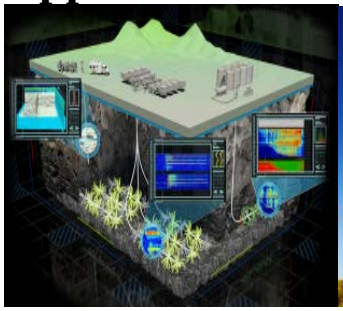
NLDFB-1550-035-AR 35 mW 1550 nm Narrow Linewidth PM Laser Module for LIDAR and Fiber Sensing Application

Overview

The NLDFB-1550-035-AR 35 mW 1550 nm Narrow Linewidth PM Laser Module series are high performance, Low RIN, Narrow linewidth DFB laser module. The NLDFB-1550-035-AR laser consists of a gain chip and a set external low noise, narrow linewidth laser and control circuit. The coupling of these components forms a cavity with significant benefits, with 35 mW option output power, very low RIN, ultra low phase noise and narrow linewidth(< 200kHz), and very low wavelength sensitivity to bias current and temperature. The NLDFB-1550-035-AR's industry-standard footprint, mounting pattern and electrical connections make it an easy drop-in replacement for existing systems, or upgrading in performance grades within the NLDFB-1550-035-AR family.
NLDFB-1550-035-AR lasers are the next generation of optical solutions – combining the high performance of long cavity fiber lasers, with the low cost, simplicity and Telcordia GR-468-qualified reliability of semiconductor lasers. The laser come with a RS232 communication port and follow command control.

The NLDFB-1550-035-AR's higher output power, low noise and ultra narrow linewidth ideally position this semiconductor optical solution for multiple applications where absolute accuracy, lifetime reliability over demanding field conditions, and high resolution are vital, such as remote sensing, distributed temperature, strain, or acoustic fiber optic monitoring, high resolution spectroscopy, LIDAR and other precision metrology application.

Application Samples



Oilfield & Gas Sensing Service

Wind Energy

Security

Construction

Applications

- Acoustic and seismic sensing
- Defense and security
- Oil & Gas – exploration and production
- LIDAR and remote sensing
- Interferometric fiber optic sensing
- Metrology
- RF and microwave photonics
- Coherent communication

Key Features

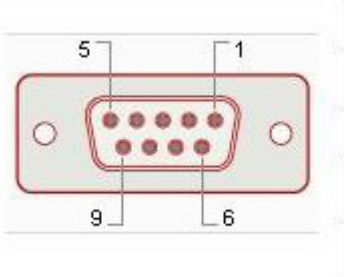
- Single longitudinal mode
- Ultra low phase noise & RIN
- Low sensitivity to vibration & acoustic noise
- Narrow linewidth (< 200 kHz), long coherence length
- Guaranteed mode hop free operation over life & temperature
- Wavelength tunability
- Unrivaled wavelength stability over life & temperature
- SMF or PMF pigtail options
- CW, modulated and pulsed operations
- 0-70°C operating case temperature
- Telcordia GR-468 Qualified
- RoHS Compliant

Specification

Parameter	Symbol	Condition	Min	Typ	Max	Units
Operating Case Temperature	T_c	I=I_{op}	-20	25	65	℃
TEC Current	I_{TEC}	-40ºC<T_C<75ºC	-1.0		+1.7	A
TEC Voltage	V_{TEC}	-40ºC<T_C<75ºC	-2.0		3.0	V
Threshold Current	I_{th}	Tc=25ºC	-	20	50	mA
Output Power	P_f	IF=I_{op}	>35			mW
Laser Drive Current	I_{op}	CW	-	-	550	mA
Laser Drive Voltage	V_{op}	CW	-	-	3.5	V
Center Wavelength	λ_c	I=I_{op}	1545	-	1555	nm
Side-mode Suppression ratio	SMSR	I=I_{op}	30	45	-	dB
Monitor Current response	I_m/P_{LD}	-	3		200	μA/mW
Relative intensity noise	RIN	20-1000 MHz		-	-160	dB/Hz
Linewidth	υ	I=I_{op}		-	500	KHz
Wavelength Drift with Case Temp	λ	-20ºC<T_C<75ºC	-	-	0.09	nm/ºC
Thermistor Resistance	R_{TH}	Top=25ºC	9.5	10	10.5	KOhm
Optical return loss	ORL	-	40	-	-	dB
Optical Isolation	ISO	-	30	40	-	dB
Polarization Extinction Ratio	PER	E-field along slow axis	20	23	-	dB
Power Consumption	-	I=I_{op}	2.5			W
Dimensions	-	-	112.8*71.6*24.6			mm

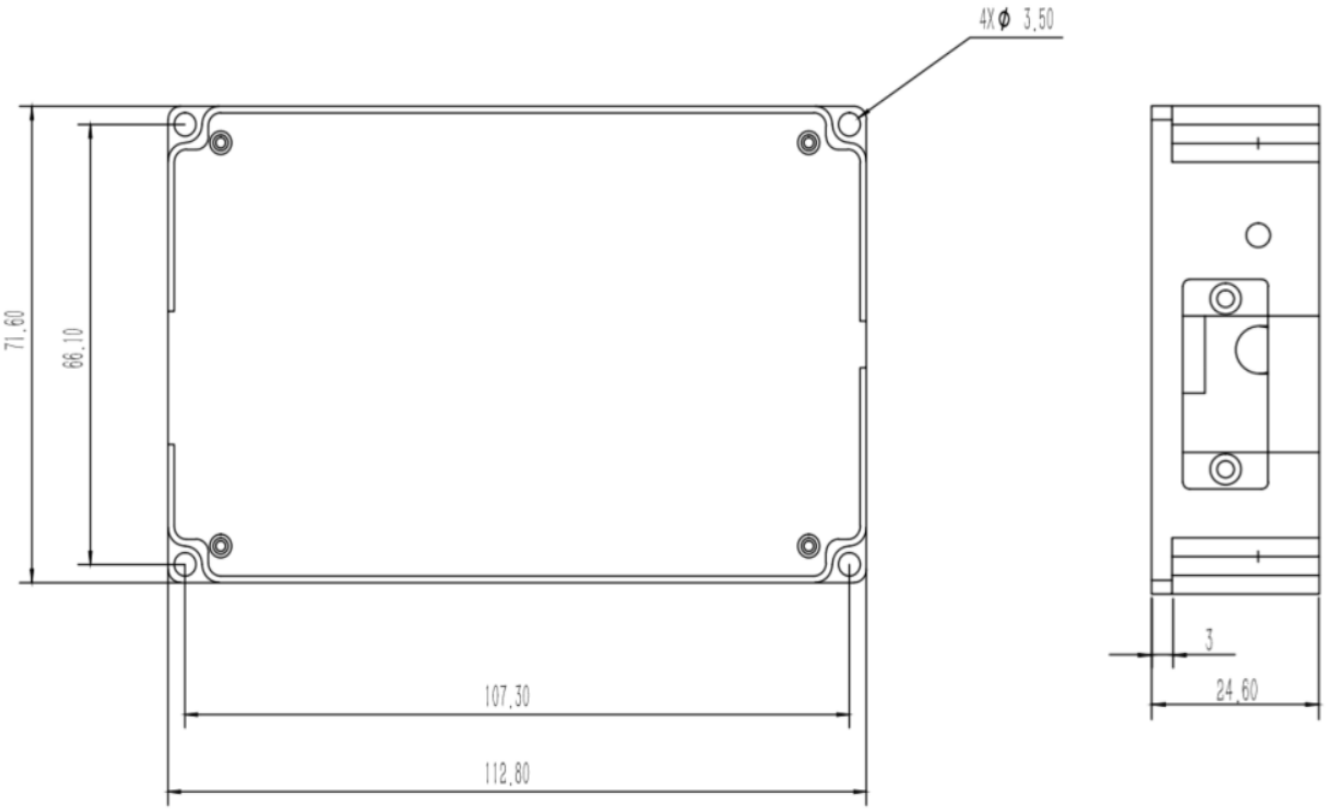
Note: *The specifications subject to change without notice.

• Electrical Interface



Pin number	Pin name	Pin function
1	+5V	+5V DC Power interface
5	GND	Ground interface
2	TX	Transmit Data
3	RX	Receive Data
4、6、7、8、9	N/C	NA

Mechanical Dimension:



Ordering Information

NLDFB-1500-XXX-AR

—	①①①
Code	**Optical Powe**
100	**100 mW**
070	**70 mW**
050	**50 mW**
010	**10 mW**

—	②
Code	**Wavelength**
Any desired custom wavelength (Please consults Sales when order custom wavelength)	
15	**ITU Channel 15, 1565.50 nm**
…	
63	**ITU Channel 63, 1527.22 nm**
1550	**1550nm**

—	③
Code	**Fiber Options**
PM	**Panda PM**

—	④
Code	**Receptacles Type**
A	**FC/APC**