

## NYSD Series Mini UWB DML Laser Module

### ➤ Feature

- ※ High-Dynamic-Range
- ※ 18 GHz Bandwidth
- ※ Low threshold current
- ※ High output power
- ※ 7pin butterfly package with SMA connector
- ※ Operating case temperature: -40 to 70°C
- ※ High reliability
- ※ Low RIN
- ※ Mini Size



### ➤ Application

- ※ Antenna Remoting
- ※ Cellular and PCS Networks
- ※ Analog RF links transmission
- ※ Military Communications
- ※ Tracking, Telemetry, and Control

### Description of NYSD Series

NYSD series module is mini directly modulated DFB laser which provides exceptional performance for linear fiber optics communications .It can provide the wavelength of 1310nm, 1550nm and CWCM. NYSD series lasers are an excellent alternative to using coaxial cable systems to transmit 12 GHz or 18 GHz signals. They offer significant improvements in reliability of microwave communications networks by transmitting the RF signal in its original format. As a result of these properties, laser products provides significant improvements in signal quality for a wide variety of applications including antenna remoting, telemetry, timing and reference signal distribution, measurement and delay lines

The NYSD series laser built in optical isolator, TEC, thermistor, laser diode chip, and monitor photodiode are hermetically sealed in a 7PIN butterfly package.

## Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Laser diode forward current	I <sub>f</sub>	-	120	mA
Laser diode reverse voltage	V	-	1	V
Front power	P <sub>f</sub>	-	20	dBm
PD reverse voltage	V	-	15	V
Forward current (PD)	I <sub>m</sub>	-	2	mA
Operation temperature	T <sub>o</sub>	-40	+70	°C
Storage temperature	T <sub>s</sub>	-55	+85	°C
Storage relative humidity	S <sub>r</sub>	-	85	%

## Electrical / Optical Characteristics (TC = 22±3°C)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units	Note
Wavelength	λ	IF= I <sub>op</sub> , T = Top	1310nm,1550nm,CWDM			nm	selected
Frequency	-	X band	0.1	-	12	GHz	-
		Ku band	1	-	18		
Optical Output Power	P	IF=I <sub>op</sub>	-	10	-	mW	1
Thershold current	I <sub>th</sub>	-	-	-	10	mA	-
Operation current	I <sub>op</sub>	-	-	55	100	mA	-
Operation voltage	V <sub>op</sub>	-	-	1.5	2.5	V	-
Slope efficiency	SE	-	0.2	-	-	W/A	-
Side-mode suppression ratio	SMSR	IF=I <sub>op</sub>	30	-	-	dB	-
Relative Intensity Noise	R <sub>IN</sub>	-	-	-150	-130	dB/Hz	-
Bandwidth (-3dB,I=60mA)	S21	X band	-	12	-	GHz	-
		Ku band	-	18	-		
Return loss (VSWR)	VSWR	X band	-	-	2	dB	-
		Ku band	-	-	2.2		
Input 1 dB Compression	-	-	15	-	-	dBm	-
Thermistor Resistance	R <sub>th</sub>	@25°C	-	10	-	Kohm	-
TEC current	I <sub>t</sub>	-	-	-	1.2	A	2
TEC voltage	V <sub>t</sub>	-	-	-	2.5	V	2
Capacitance (PD)	C <sub>t</sub>	-	-	-	20	pF	-
Monitoring current	I <sub>m</sub>	-	0.10	-	2.0	mA	-
Dark current (PD)	I <sub>d</sub>	-	-	-	50	nA	-

Notes: All laser chips come from wafers that have been certified using a representative lot of devices that must achieve an acceptable yield for burn-in.

1. Laser temperature set 25°C, bias current at 55mA
2. Operation case temperature -40~70°C

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**Typical Curve**

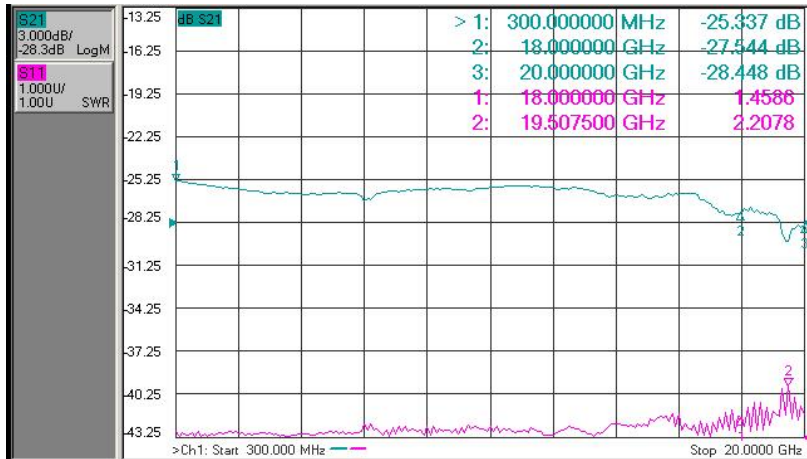


Figure 1. NYSD Series laser X band S-curve

**Typical Spectrogram**

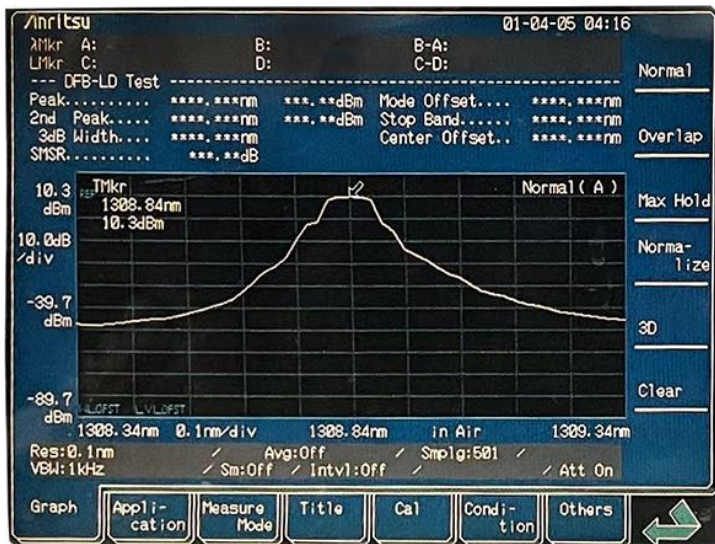


Figure 2. NYSD Series laser Spectrogram - band 1nm

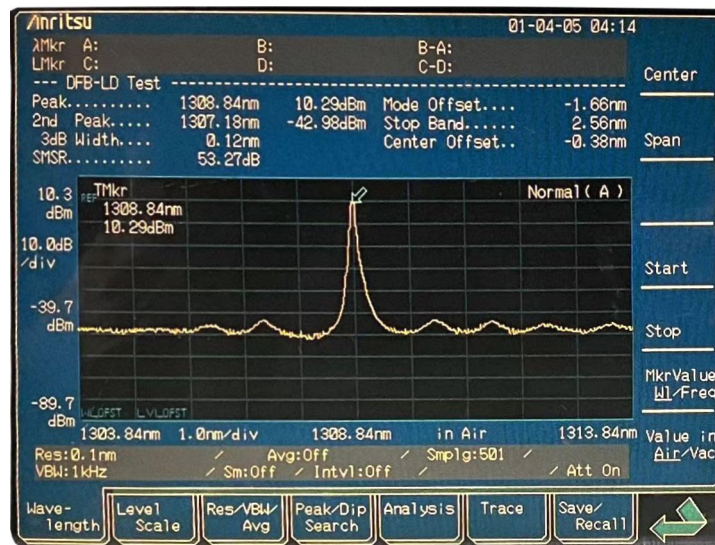


Figure 3. NYSD Series laser Spectrogram - band 10nm

**Dimension**

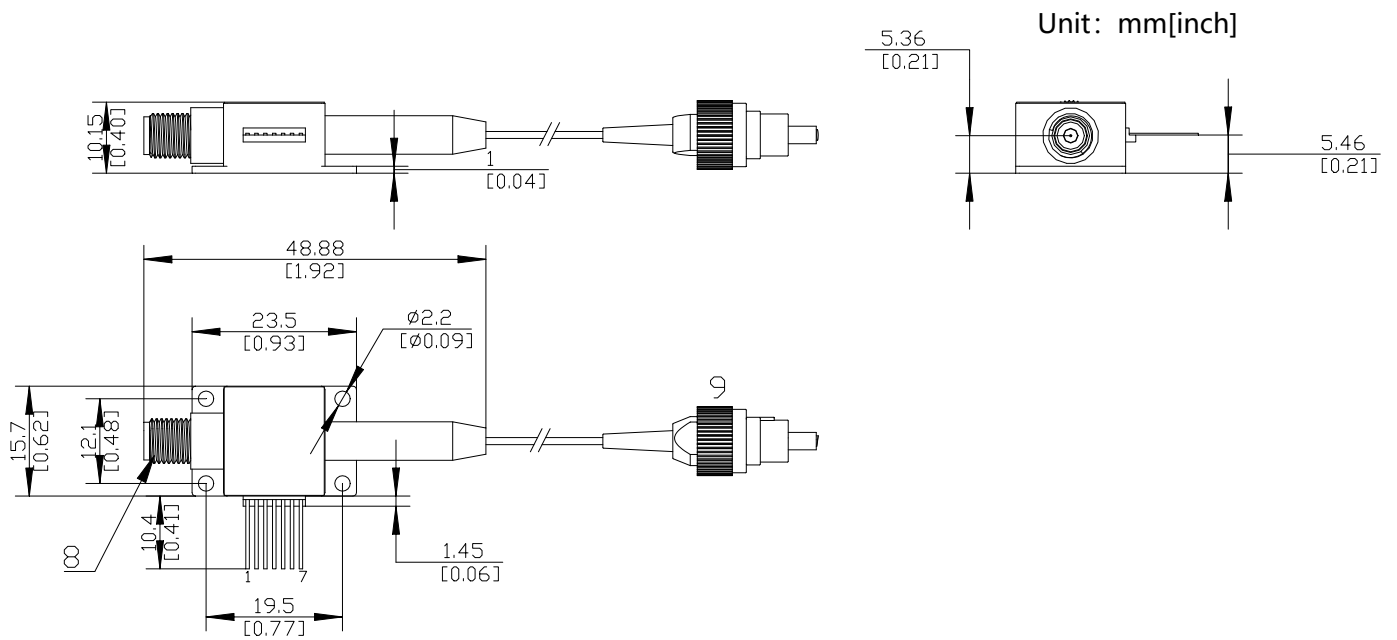


Figure 4. Dimension of NYSD Series

**Definition of Pin**

Item	Definition								
Pin	1	2	3	4	5	6	7	8	9
Descriptio	PD-	PD+	LD-	Thermistor	Thermistor	TEC-	TEC+	RF output	Optical input
Type	--	--	--	--	--	--	--	SMA-K	FC/APC

**ORDER INFORAMTION**

**NYS** □□ **D-**□-□ \_\_\_\_\_ Sheet 3  
 \_\_\_\_\_ Sheet 2  
 \_\_\_\_\_ Sheet 1

Sheet 1:

Model	13	15	W1	W2	W3	W4	W5	W6	W7
Wavelength(nm)	1310	1550	1270	1290	1310	1330	1350	1370	1390
CWDM粗波分复用									

Sheet 2:

Model	Frequency
X	0.1 ~ 12 GHz
Ku	1 ~ 18 GHz

Sheet 3:

Model	Type of optical connector	Remark
N	Customized	
A	FC / APC	Standard 9/125μm single mode fiber
P	FC / PC	Standard 9/125μm single mode fiber