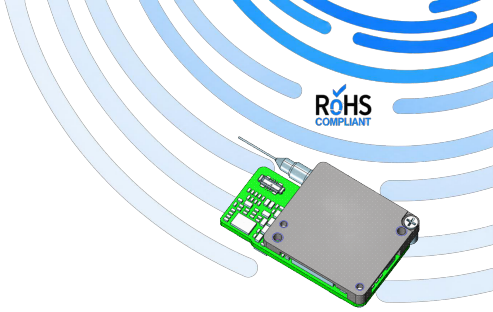
WESTERN OPTRONICS



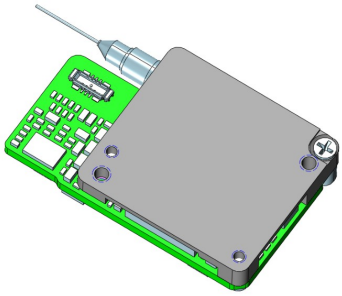
WN-NANO-iTLA-C120 Nano ITLA

C Band Nano Integrated Tunable Laser Assembly

Function Description

WN-NANO-iTLA-C120 ITLA (Integrated Tunable Laser Assembly) is a high performance continuous wave tunable laser source for use in the C-band window covering 1523.72 nm (196.75 THz) to 1572.27 nm (190.675 THz). The ITLA features shuttered tuning, optical power control, off-grid tuning and narrow linewidth. Comprehensive control and system reporting is provided over the RS232 interface.

The ITLA is designed for 100-800 Gbps coherent module applications. Related protocol is agreed with OIF-ITLA-MSA-01.3.



FEATURES

- Full super C band tuning
- High output power: up to 17 dBm
- Flex grid: tune to any 0.1 GHz grid
- Narrow linewidth: < 100 kHz
- Frequency accuracy: ±1.0 GHz
- Small form factor size: Nano ITLA, compliant to QSFP-DD/CFP2/OSFP module applications
- Fast wavelength tuning & shutter function

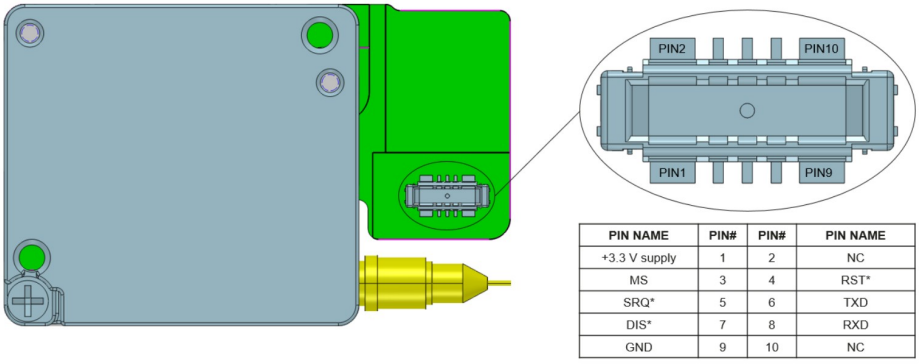
APPLICATIONS

- Coherent module applications

Pin Description

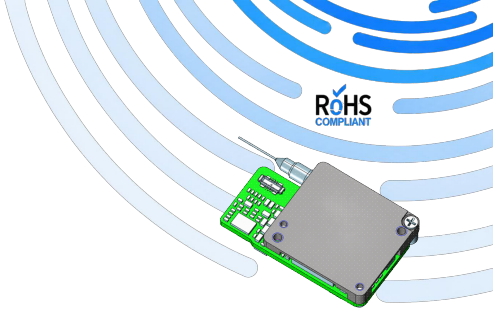
The connector type in the Nano ITLA is Board-to-Board male connector with 10 pins for host side.

Figure 3-1 Connector



PIN NAME	PIN#	PIN#	PIN NAME
+3.3 V supply	1	2	NC
MS	3	4	RST*
SRQ*	5	6	TXD
DIS*	7	8	RXD
GND	9	10	NC

Pin	Symbol	Type	Description
1	+3.3 V supply	Power	+3.3 V power supply Pins are connected together internally.
2	NC	Power	No connection
3	MS*	Input, active low-high transition	Provides hardware control to reset the physical interface.
4	RST*	Input, active low	Disables laser out and holds the module in RESET.
5	SRQ*	Output, active low	Programmable module service request
6	TXD	Output	Transmits outbound packets from the module.
7	DIS*	Input, active low	Provides hardware control to kill laser output.
8	RXD	Input	Receives inbound packets from the host.
9	GND	Power	Ground Pins are connected together internally.
10	NC	Power	No connection



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Absolute Maximum Ratings

It has to be noted that the operation in excess of any individual absolute maximum ratings might cause permanent damage to this module.

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Operating case temperature	Tc	-5		80	°C	
Storage case temperature	Ts	-40		85	°C	
Operating relative humidity	RH	5		85	%	1
Storage relative humidity	RH	5		85	%	1
Power pin voltage 3.3 V supply	VCC	-0.3		3.6	V	
Signal pin voltage		-0.3		3.6	V	2
Electro static discharge				500	V	3
Fiber bend radius		5			mm	

Note

1. Non-condensing.
2. Signal pins refer to "DIS*, MS*, TXD, RXD, RST*".
3. Human body model, C = 100 pF, R = 1.5 kΩ.

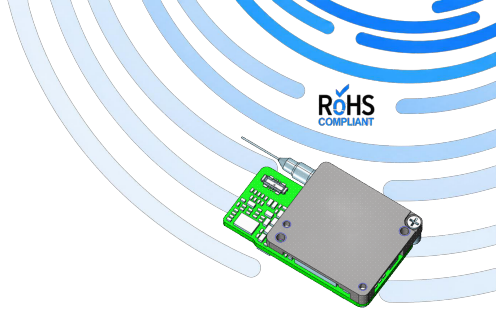
Operating Environment

Electrical and optical characteristics below are defined under this operating environment, unless otherwise specified.

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Operating case temperature	Tc	-5		75	°C	75°C at long term, 80°C at short term (96 hours continuously, less than 15 days per year)
Power pin voltage 3.3 V supply		3.135	3.3	3.465	V	

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Power dissipation				3.3	W	At 75°C
Signal pin input voltage, low	VIL	0		0.8	V	
Signal pin input voltage, high	VIH	2.43		3.465	V	
Signal pin output voltage, low	VOL	0		0.6	V	1
Signal pin output voltage, high	VOH	2.4		3.465	V	2
3.3 V supply current				1.5	A	3
Power-on and power-off sequences		3.3 V power-on time (0- 90%) should less than 50 ms.				
Power supply noise				1	%rms	4
RS232 interface		9600		115200	Baud	5



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Note

1. IOL = 8 mA.
2. IOH = -8 mA.
3. Max current ratings cover the operating temperature from -5°C to +75°C. In-rush (peak) current does not exceed maximum supply current levels.
4. For power supplied to the module, 100 Hz to 20 MHz.
5. Default 9600 baud.

Optical Characteristics

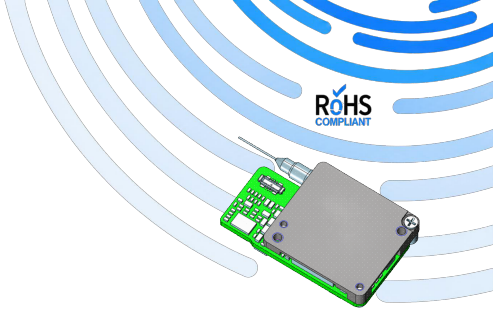
Case temperature: -5°C to +75°C

Parameter	Min.	Typ.	Max.	Unit	Note
Optical output power set point	12		17	dBm	
The accuracy between power set point and actual output power (BOL)	-0.5		0.5	dB	
The accuracy between power set point and actual output power (EOL)	-1.0		1.0	dB	
Frequency range	190.675		196.75	THz	
Wavelength range	1523.72		1572.27	nm	
Grid spacing	0.1	50		GHz	
Frequency accuracy (BOL)	-1		1	GHz	
Frequency accuracy (EOL)	-1.5		1.5	GHz	
Fine tune frequency range	-6.25		6.25	GHz	
Fine tune frequency resolution	100			MHz	
Spectral linewidth			100	kHz	Lorentzian linewidth
Side mode suppression ratio	40	50		dB	
Relative intensity noise (10 MHz-10 GHz, average)			-140	dB/Hz	
Polarization extinction ratio	20			dB	
Back reflection tolerance			-27	dB	Stable power and frequency @-20 dB
Output power when laser disable			-35	dBm	
Wavelength tuning time		10	30	s	
Launch time		10	30	s	

Command Interface

WN-NANO-iTLA-C120 is compliant with OIF-ITLA-MSA commands.

Parameter	Min.	Typ.	Max.	Unit
Command execution time			50	ms
Command response time after reset			800	ms

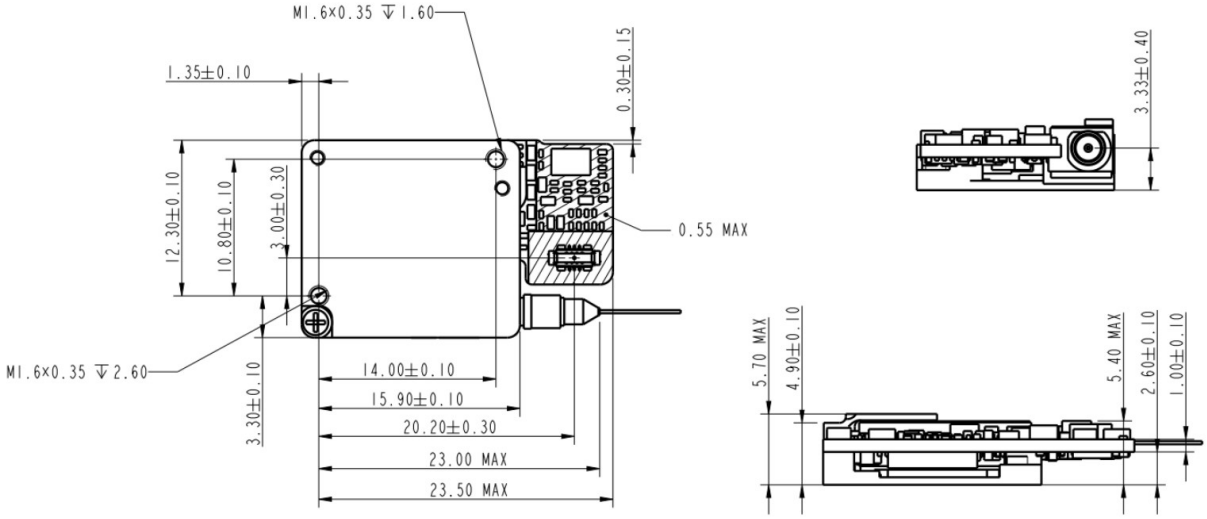


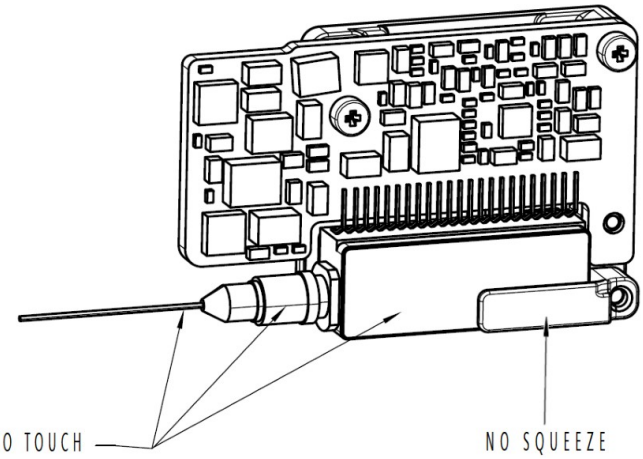
WN-NANO-iTLA-C120 Nano ITLA

C Band Nano Integrated Tunable Laser Assembly

Mechanical Specifications

Figure 9-1 Mechanical dimensions (unit: mm)





Notice

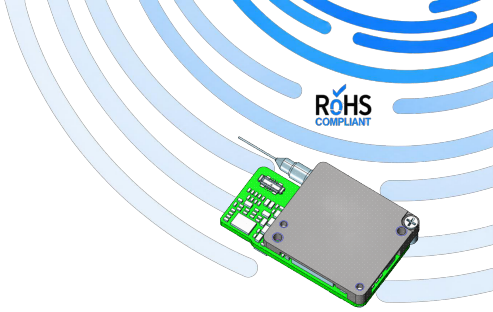
• Do not touch the device without static electricity bracelet.

• Handle the goldbox and pigtail of the tunable laser carefully during assembly.

Fiber Pigtail Specifications

Parameter	Min.	Typ.	Max.	Unit
Fiber type		Polarization maintaining fiber		
Mode field diameter		9.5		μm
Cladding diameter		125		μm
Coating diameter		250		μm
Fiber length	500		TBD	mm

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WN-NANO-iTLA-C120 Nano ITLA

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Parameter	Min.	Typ.	Max.	Unit
Fiber bending radius	5			mm
Fiber connector		FC/UPC		
Polarization axis		Slow axis		

Regulatory Compliance

Feature	Category	Standard	Performance
Safety	NRTL	UL 62368-1 CAN/CSA C22.2 No. 62368-1 IEC 60825-1 IEC 60825-2	NRTL recognized component for US and CAN
	TUV	EN 62368-1 EN 60825-1 EN 60825-2	TUV certificate
	FDA	U.S. 21 CFR 1040.10 & 1040.11	FDA/CDRH certified with accession number according to Laser Notice 56
Restriction of Hazardous Substances	RoHS	EU RoHS (2011/65/EU & (EU) 2015/863) & UK RoHS EN IEC 63000:2018 & BS EN IEC 63000:2018	

ESD Design

Normal ESD precautions are required during the handling of this module. This ITLA is shipped in an ESD protective packaging. It should be removed from the packaging and handled in an ESD protected environment utilizing standard grounded benches, floor mats, and wrist straps.

Parameter	Threshold	Note
ESD	500 V	Human body model

Safety Specification Design

Caution

Do not look into fiber end faces without eye protection using an optical meter (such as magnifier and microscope) within 100 mm, unless you ensure that the laser output is disabled. When operating an optical meter, observe the operation requirements.

CAUTION-Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Attention-L'utilisation des commandes ou réglages ou l'exécution des procédures autres que celles spécifiées dans les présentes exigences peuvent être la cause d'une exposition à un rayonnement dangereux.

Ordering Information

Part Number	Description
WN-NANO-iTLA-C120	C band Nano ITLA 1523.72 nm (196.75 THz) to 1572.27 nm (190.675 THz)

Contact

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