







## **Typical Specifications**

Central wavelength	1550 nm
Switching speed	<10 ns
RIN	<-150 dB/Hz
Tuning range	40 nm
Side-Mode-Suppression Ratio	>40 dB
Output power	>10 dBm
Linewidth	<150 kHz

# Low Linewidth Fast Tunable Laser

Pilot Photonics' tunable lasers are InP monolithic single mode lasers in the C-band and O-band. The lasers exhibit a tuning range of > 30 nm centered at 1550 nm, with distinct mode-islands and high sidemode suppression ratio. The tuning of these devices rely on a reverse-voltage controlled electro-optic effect which results in a fast switching (<10 ns), low linewidth (150 kHz) and low power consumption.

These lasers are offered in three form factors: standard 14-pin butterfly packages, n-iTLA and custom high-speed evaluation units. The packages have thermo-electric coolers, internal isolators and polarization-maintaining (PM) fiber pigtail with FC/APC connectors. They also feature internal photodetectors and wavelength monitors.

### **Features**

- Single mode laser chip
- Monolithic design suitable for photonic integration
- C-band wavelength (Option for O-band)
- Wide tuning range
- High side-mode suppression ratio (>40 dB)
- Output power >10 dBm
- Low optical linewidth (<150 kHz)</li>
- Nanosecond switching times through voltage tuning
- n-iTLA offers smaller size, power and costs
- Wavelength locker and wavelength meter included in package

### **Applications**

Dense Wavelength Division Multiplexing (DWDM)

in

- Coherent optical communications
- Distributed fiber sensing & gas sensing
- Sensor interrogation
- Fiber optic testing

\*Specification Subject to Change

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## Low Linewidth Fast Tunable Laser

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Optical Specifications	Min.	Тур.	Max.	Unit	Notes
Centre Wavelength	-	1550	-	nm	
Tuning Range	30	35	40	nm	Mode separation 0.4 nm/50 GHz
Output Power		10		dBm	Higher power under development
Side-mode suppression ratio (SMSR)	30	40	45	dB	
Switching Speed	3	5	10	ns	Using high-speed analogue inputs
RIN		-150		dB/Hz	
Linewidth		150		kHz	
Chirp		1		GHz	*At 100 kHz repetition rate
Operating Specifications					
Reverse Voltage (any section)	0	-	-15	V	
Total Power Consumption		1		W	PIC and TEC
TEC Voltage	-2		2	V	For 14BFY form-factor
TEC Current	-1.3	0	1.3	А	
Chip Temperature	15	20	40	°C	
Case Temperature	-5	25	85	°C	
Storage Temperature (Non-operational)	-20		70	°C	
Physical Specifications (Butterfly package)					
Dimensions		30x12.7x8.2		mm	
Optical isolation		30		dB	
Polarization Extinction ratio	17	20	26	dB	
Fiber type		PANDA PM			Slow axis aligned
Fiber connector		FC/APC			Narrow key

## Packages and Evaluation Units available





#### Specification Subject to Change

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## **Low Linewidth Fast Tunable Laser**

### **Nano-ITLA Package**

	Pin Des Molex 505	crip 547	otion 61010
1	Vcc - Power +3.3/5V Supply	6	TXD – Module Transmit Data
2	NC	7	DIS* - Disable optical output
3	MS* - Module IO Select	8	RXD – Module Receive Data
4	RST* - Reset	9	Ground
5	SRQ* - Programmable service reset request	10	NC



### **Butterfly Package**

	Pin Desc	crip	tion
1	TEC+	8	LD Ground
2	λ-Locker PD	9	Tuner 2
3	Reference PD	10	Phase
4	Thermistor (10 k $\Omega$ )	11	PD ground
5	Thermistor (10 k $\Omega$ )	12	LD Gain
6	LD SOA	13	λ-Meter PD
7	Tuner 1	14	TEC-

## **Evaluation Unit**

	Pin Descri	ption [	D-SUB15	
1	TEC+	9	Reference PD	
2	TEC+	10	LD Ground	
3	TEC-	11	λ-Locker PD	
4	TEC-	12	LD Ground	
5	LD SOA	13	LD Gain	
6	LD Gain	14	λ-Meter PD	
7	Thermistor	15	PD ground	
8	Thermistor			



