



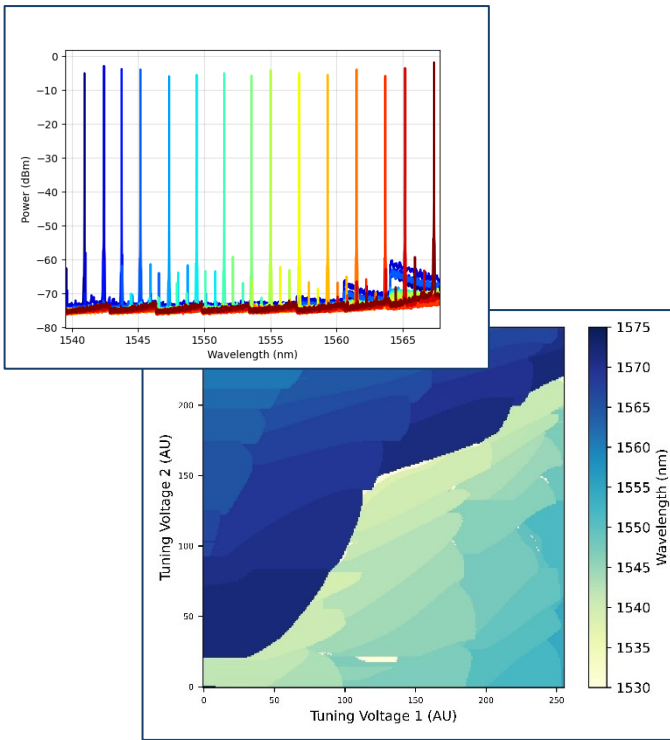
Low Linewidth Fast Tunable Laser

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 side-mode suppression ratio. The tuning of these devices rely on a reverse-voltage controlled electro-optic effect which results in a fast switching, low linewidth (< 150 kHz) and low power consumption.

These lasers are offered in three form factors: standard 14-pin butterfly packages, n-iTLA, and our Lyra-TL bench module. The standard 14-pin butterfly 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)
- Very wide tuning range
- High side-mode suppression ratio
- Output power = 0 dBm
- Low optical linewidth
- Nanosecond switching times through voltage tuning
- n-iTLA offers smaller size, power and costs
- Wavelength locker and wavelength meter included in package



Typical Specifications

Central wavelength	1550 nm
Switching speed	< 5ns
RIN	< -150 dB/Hz
Tuning range	35 nm
Side-Mode-Suppression Ratio	45 dB
Output power	0 dBm
Linewidth	< 150 kHz

Applications

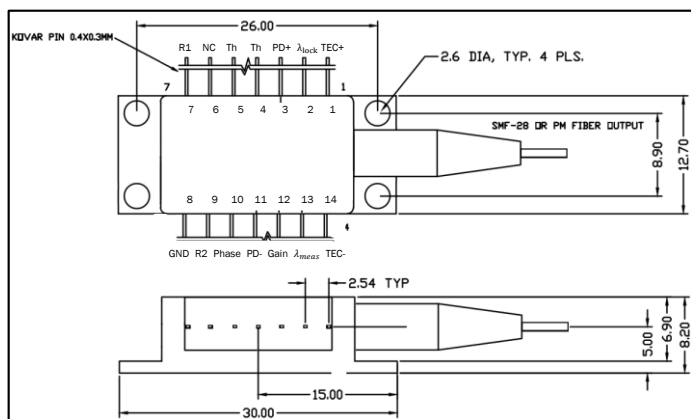
- Dense Wavelength Division Multiplexing (DWDM)
- Coherent optical communications
- Distributed fiber sensing & gas sensing
- Sensor interrogation
- Fiber optic testing



Tunable Laser

Fast, widely tunable & low linewidth

Optical Specifications	Min.	Typ.	Max.	Unit	Notes
Centre Wavelength	-	1550	-	nm	
Tuning Range	30	35	40	nm	Mode separation 1nm
Output Power		0	14 *	dBm	*With SOA at the output
Side-mode suppression ratio (SMSR)	40	45	50	dB	
Switching Speed		5	10	ns	
RIN		-150		dB/Hz	
Linewidth	100	150	200	kHz	
Chirp		1*		GHz	*At 100 kHz repetition rate
Operating Specifications					
Reverse Voltage (any section)	0	-	-10	V	
Total Power Consumption		3		W	PIC and TEC
TEC Voltage	-2		2	V	
TEC Current	-1	0	1	A	
Chip Temperature	15	20	40	°C	
Case Temperature	-5	25	85	°C	
Storage Temperature (Non-operational)	-20		70	°C	
Physical Specifications (Butterfly package)					
Dimensions		2.3 x 1		mm	Bare die
Optical isolation		30		dB	
Polarization Extinction ratio	17	20	25	dB	
Fiber type		Corning PANDA PM			In butterfly packages, slow axis aligned
Fiber connector		FC/APC			In butterfly packages, narrow key



Pin Description			
1	TEC+	8	Ground
2	λ -Locker PD	9	Tuner 2
3	Reference PD	10	Phase
4	Thermistor (10 k Ω)	11	PD ground
5	Thermistor (10 k Ω)	12	Gain
6	Not connected	13	λ -Meter
7	Tuner 1	14	TEC-