

## Tunable EML Laser Transmitter Optical Sub-Assembly TOSA TLDXE Series



### Key Features

- Up to 40 channels at 100GHz spacing or up to 80 channels at 50GHz spacing
- O-band or C-band
- Tunable EML chip
- Simple tuning algorithm
- 10 - 25 Gbps EA modulation
- Small package size

### Applications

- WDM-PON
- Colorless ONU
- Intelligent optical interconnects
- DWDM sparing
- Dynamic wavelength provisioning
- Wavelength routing

Widely wavelength tunable semiconductor lasers are key components for next-generation optical networks. Conventional tunable lasers require complex fabrication processes such as non-uniform gratings and multiple epitaxial growths, and need multiple electrodes with complex control algorithms for wavelength tuning. As the dense wavelength division multiplexing (DWDM) technology extends towards access and data center networks, the cost reduction and operational simplicity have become more and more important.

Lightip has developed a simple and compact tunable laser based on patented proprietary technologies. It consists of a half-wave coupled V-cavity laser. The laser structure does not involve any grating or epitaxial regrowth, and has a much smaller size compared to conventional tunable lasers. The advantages of compactness, fabrication simplicity and easy wavelength control offer cost-effective tunable laser solutions for many applications in metro/access networks, datacenters and beyond.

The TLDXE series Transmitter Optical Sub-Assembly (TOSA) integrates a V-cavity edge-emitting tunable EML laser, an isolator, and a TEC controller. The connector type can be chosen from LC, SC or fiber-pigtail with FC/PC or FC/APC connector. It can provide up to 40 channels at 100GHz spacing or 80 channels at 50GHz spacing in C- or O- band (other wavelength bands available on request). Currently the tunable EML is available for 10Gbps and 25Gbps data rates.

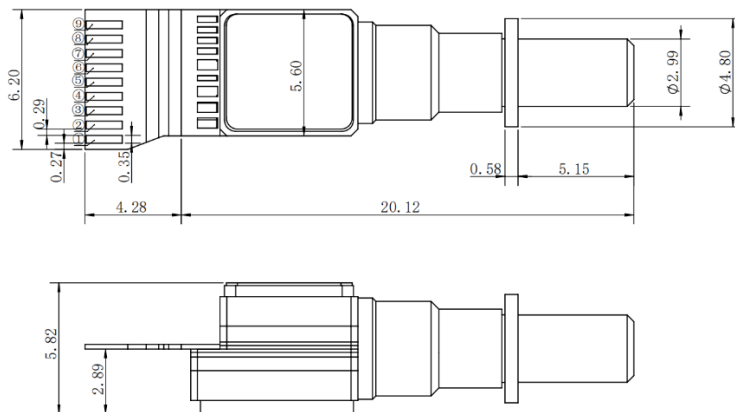
## Specifications

Parameters	Min.	Typ.	Max.	Unit
Optical Output Power		-3 (C-band) 0 (O-band)		dBm
LD Operating Temperature	10	35	65	°C
Ambient Operating Temperature	0	-	70	°C
Gain Forward Bias Current	25	30	100	mA
Channel Selector Current	20	-	140	mA
Fine Tuning Current	20	25	50	mA
LD Forward Bias Voltage	-	-	2.3	V
Modulation Data Rate	10 – 25			Gbps
Wavelength	C- or O-band (other wavelengths available on request)			
Channel Spacing	50 or 100			GHz
Number of Channels	16, 32, 40 @ 100GHz, or 32, 64, 80 @ 50GHz			
Side Mode Suppression Ratio	35	38 - 40	-	dB
Optical Isolation	25	-	-	dB
Relative Intensity Noise	-	-	-135	dB/Hz
TEC Current	-	0.7	1	A
TEC Voltage	-	2.2	3	V
Thermistor B constant	-	4050	-	K
Thermistor Resistance @25°C	9.5	10	10.5	kΩ

\* Product specifications are subject to change without notice.

## Dimensions

(in millimeters)



## Pin Assignments

Pin	Sym bol	Description
1	TEC+	TEC anode
2	TEC-	TEC cathode
3	GND	Ground
4	EA	Modulation signal
5	GND	Ground
6	LD1	Gain bias
7	LD2	Channel selector
8	LD3	Fine tuning
9	R <sub>Th</sub>	Thermistor