

# LDS-1550-DFB-2.5G-10S

## OVERVIEW

LDS-1550-DFB-2.5G-10S is the MQW laser diode coupled to an optical fiber and packaged into a hermetic case. The special feature of the LDS technology is the increased thermal stability of optical power

## MAIN FEATURES

- Wavelength: 1550 nm
- Cavity type: DFB
- Linewidth: <1 MHz
- Data rate up to 2.5 Gbps
- Optical power: up to 10 mW in CW mode
- Package types: coaxial, coaxial with bracket, 14 pins BTF
- Built-in monitor photodiode

## APPLICATIONS

- Optical fiber communication systems with data rate up to 2.5 Gbps
- Laser systems

## ORDERING INFORMATION

### LDS-1550-DFB-2.5G-10S-X-2-X-X-X-X

#### Case type

**U:** compact coaxial (pulse mode only)

**B:** compact coaxial with double-sided bracket

**BTF:** 14-pins BTF for active thermal stabilization (TEC and thermistor)

Other type on request

#### Fiber type

**SM1:** SM, G.657.A1, [Corning SMF-28 Ultra](#), furcation tubing Ø0.9 mm or **BSM1** Ø0.25mm

**SM3:** SM, G.657.B3, [Corning ClearCurve ZBL](#), furcation tubing Ø0.9 mm or **BSM3** Ø0.25mm

**SMP13:** PM, [Fujikura SM13](#), PANDA type, furcation tubing Ø0.9 mm

Other type on request

#### Connector type

**FA:** FC/APC (SM1, SM3, SMT)

**FU:** FC/UPC (SM1, SM3, SMT, MM5, MM6)

**SA:** SC/APC (SM1)

**SU:** SC/UPC (SM1)

**N:** no connector

Other type: on request

#### Test measurements

**CW:** CW mode (electro-optical parameters at T=25+/-5 C and spectrum)

**P:** pulse mode (10 µs; duty cycle = 1%)

**CWP:** both CW and pulse modes

#### Fiber length

**0.5:** 500+/-50 mm

**1.0:** 1000+/-100 mm

Other length on request

# LDS-1550-DFB-2.5G-10S

## ABSOLUTE MAXIMUM RATINGS

Parameter		Value	Unit	Conditions
Laser diode forward current	$I_{FL}$	100	mA	CW
		200	mA	Pulse
Laser diode reverse voltage	$V_{RL}$	2	V	
Photodiode reverse voltage	$V_{RP}$	15	V	
Photodiode forward current	$I_{FP}$	5	mA	
Operating temperature*	$T_{OP}$	-40 - +85	°C	Package U, B
Operating temperature*	$T_{OP}$	-40 - +60	°C	Package BTF (Tst = 25°C)
Storage temperature	$T_{stg}$	-40 - +85	°C	
Soldering temperature	$T_{sold}$	260	°C	Max. 10 seconds

\*Operating temperature is defined by the case temperature. It is recommended to ensure sufficient heat dissipation so that the module's maximum operating temperature is not exceeded. Operation at elevated temperatures reduces the lifetime of the laser diode.

Operating temperature for the BTF 14-pins case with TEC is defined for internal temperature stabilization at Tst = 25°C that corresponds to thermistor resistance Rt = 10 kOhm.

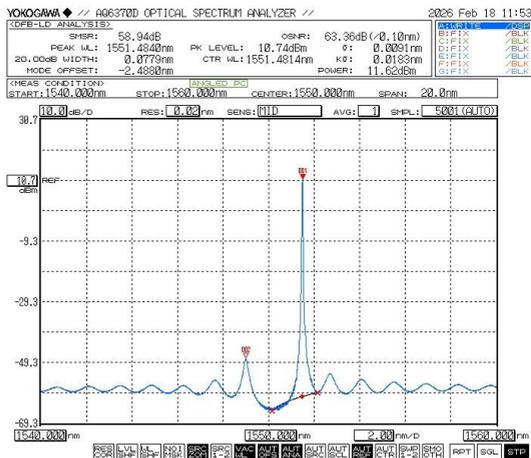
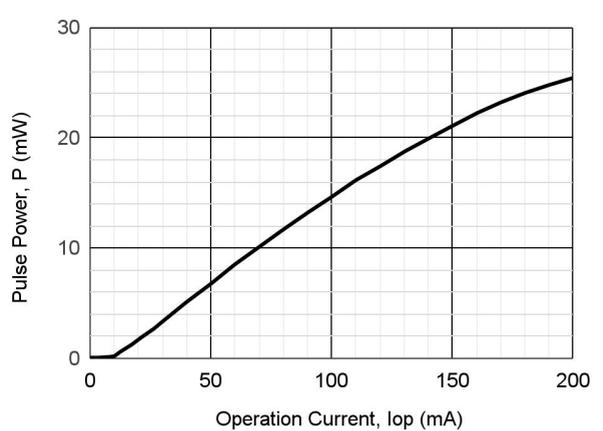
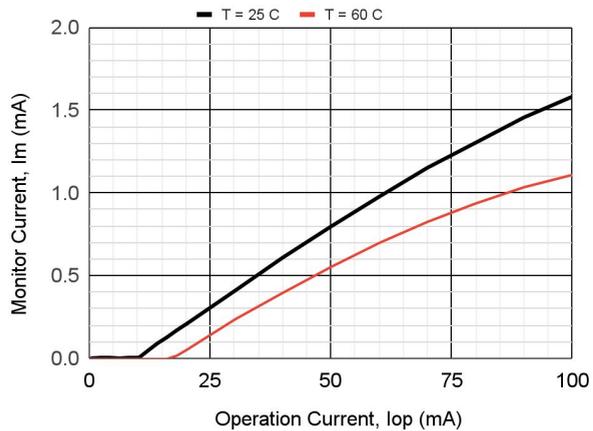
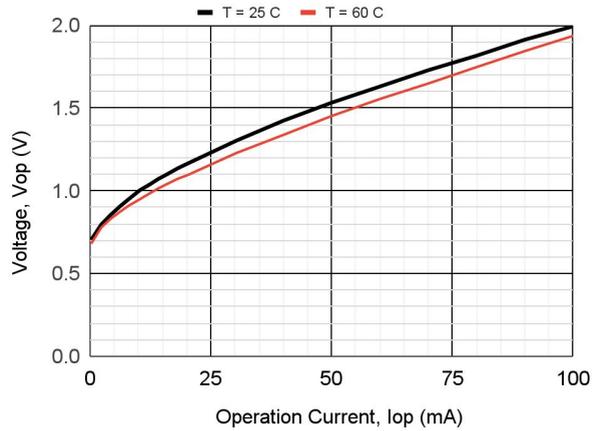
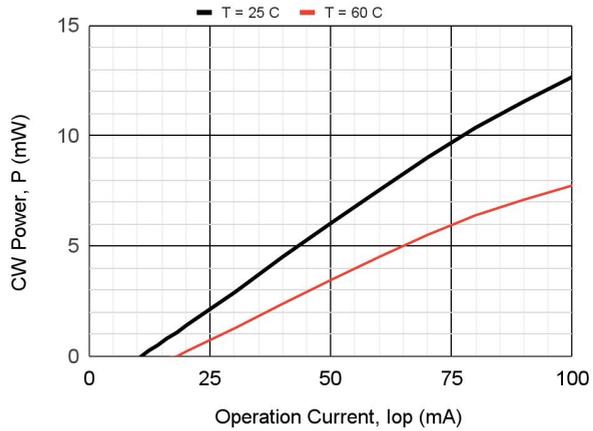
## ELECTRICAL-OPTICAL CHARACTERISTICS (T = 25 °C)

Parameter		MIN	TYP	MAX	Unit	Conditions
Optical power (CW)	$P_{CW}$	10			mW	CW, $I_{op} = 100$ mA, SM1
Optical power (pulse)**	$P_p$	20	25		mW	Pulse, $I_{op} = 200$ mA
Wavelength	$\lambda$	1545	1550	1555	nm	CW, $I_{op} = 100$ mA
Spectral width	$\Delta\lambda$		0.08		nm	CW, $I_{op} = 100$ mA, -20 dB, OSA
Spectral width	$\Delta\lambda$			1	MHz	CW, $I_{op} = 100$ mA, delayed self-heterodyne method
Wavelength-temperature coeff.	$d\lambda/dT$		0.10		nm/°C	
Side-mode suppression ratio	SMSR	40	55		dB	CW, $I_{op} = 100$ mA
Threshold current	$I_{th}$		10	15	mA	CW
Slope efficiency	$S_e$	0.15	0.19		W/A	CW, SM1
Operating voltage	$V_{op}$		1.9	2.2	V	CW, $I_{op} = 100$ mA
Tracking error***	$E_r$				dB	CW, P = 3 mW; T = -40 ÷ +80 °C
Rise and fall times	$t_r, t_f$			200	ps	20%-80%, package U, B
Monitoring output current (PD)	$I_m$	0.2	1.5	4.0	mA	CW, $I_{op} = 100$ mA, $V_{rd} = 5V$
Dark current (PD)	$I_d$			100	nA	$V_{rd} = 5V$

\*\*Pulse mode: pulse duration 10  $\mu$ s; duty cycle = 1%

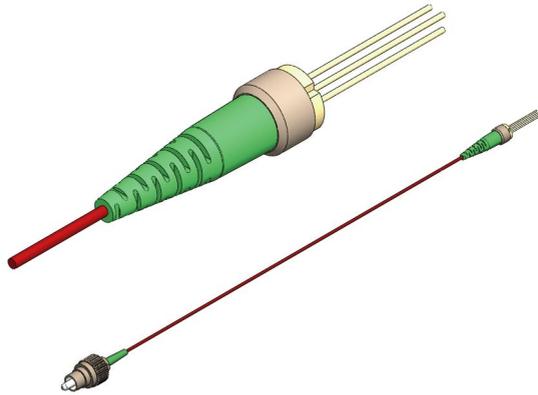
\*\*\*Tracking error  $E_r = \max |10 \lg [P(T)/P(25^\circ C)]|$ ,  $I_m = \text{const}$ ,  $T = T_{min} \div T_{max}$

# LDS-1550-DFB-2.5G-10S

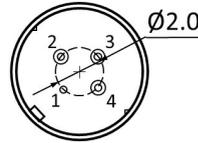


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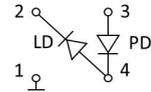
## PACKAGE U



BACK VIEW



PINOUT  
#2



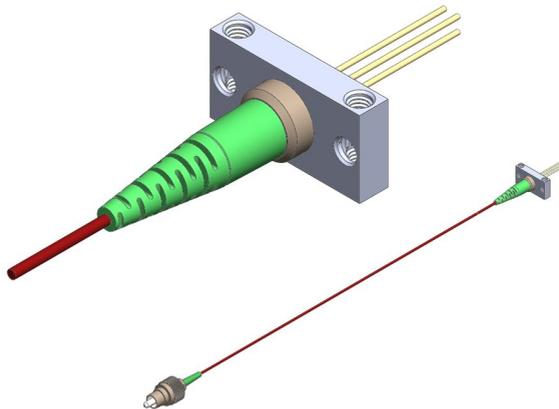
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Drawing

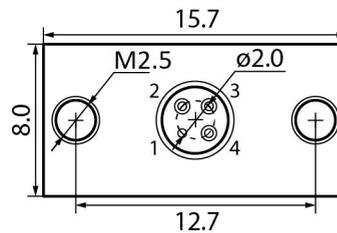
3D model

Application Notes

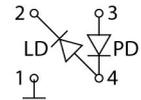
## PACKAGE B



BACK VIEW



PINOUT  
#2



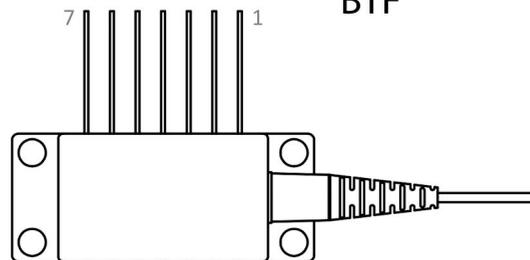
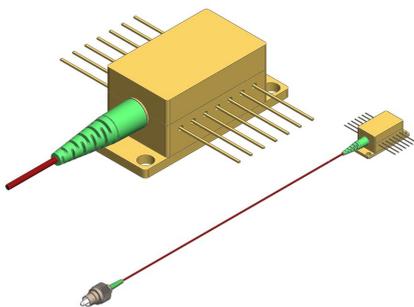
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Drawing

3D model

Application Notes

## BTF



1. TEC+
2. Thermistor
3. NC
4. NC
5. Thermistor
6. NC
7. NC
8. NC
9. NC
10. LD/SLD Anode
11. LD/SLD Cathode
12. NC
13. Case Ground
14. TEC -

TEC HP:  $I_{max} = 1.4A$ ,  $U_{max} = 3.9V$ ,  $Q_{max} = 3.3W$ ,  
AC R = 2.0 Ohm,  $\Delta T_{max} = 69K$

Package limits RF bandwidth to 500 MHz  
Thermistor:  
 $R_t = 10 * \text{EXP}(3600 * \{1/T[K] - 1/298\})$  kOhm

Download more information

Drawing

3D model

Application Notes

# LDS-1550-DFB-2.5G-10S

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Characteristics, data, materials and structures specified in this datasheet are subject to change without notice. Please refer to the latest specification before use of the products.

## Safety and handling cautions

1. Avoid smashing and burning of the module. Avoid storing and using the module in conditions where water, organic solvents or aggressive acids or bases may contact the module or where there is a possibility of exposure to corrosive gases, explosive gases, dust, salinity or other harsh conditions. The module should be disposed as special industrial waste.
2. Exceeding absolute maximum ratings even for a short time can cause permanent damage of the module.
3. The module is sensitive to and can be broken by ESD (static electricity).

## Conflict Minerals Policy Statement

LasersCom LLC achieves business objectives and customer needs with social responsibility. We do not support or contribute to the violence and human rights violations associated with the mining of conflict minerals coming from Conflict Regions according to US "Dodd-Frank Act". When possible, our suppliers' conflict mineral statements are reviewed. We do not directly purchase Conflict Minerals from any source and do not knowingly procure any parts and products containing Conflict Minerals from Conflict Regions.

## RoHS Compliance Statement

Restriction of Hazardous Substances (RoHS) directive (Directive 2011/65/EC amended with Directive (EU) 2015/863) is the directive aimed at reducing the harmful environmental impact of waste electrical equipment by restricting the use of known dangerous substances. Based on information received from our supply sources, LasersCom LLC hereby states that the banned substances listed in the RoHS directive are not found in the parts and materials used above the threshold level listed other than exceptions approved by the European Commission.

## REACH Compliance Statement

Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) is a European Union regulation 1907/2006/EC that addresses the production and use of chemical substances, and their potential impacts on human health and the environment. Based on information received from our supply sources, LasersCom LLC hereby states compliance of the parts and materials used in manufacturing to REACH regulation. LasersCom LLC does not manufacture or import any substances or preparations as defined under REACH.