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LDS-1550-DFB-2.5G-15/50

OVERVIEW

LDS-1550-DFB-2.5G-15/50 is an InGaAsP MQW laser diode coupled to an optical fiber

The special feature of the LDS technology is the increased thermal stability of optical power

MAIN FEATURES

- Wavelength: 1550 nm
- Cavity type: DFB
- Linewidth < 500 kHz
- Data rate up to 2.5 Gbps
- Optical power: up to 15 mW in CW mode and up to 50 mW in pulse mode in the single-mode fiber G.657.A1
- Typical thermal stability of optical power (tracking error) 0.15 dB
- Package types: coaxial
- 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-15/50-X-2-X-X-X

Case type

U: compact coaxial (pulse mode only)
B: compact coaxial with double-sided bracket
 It is necessary to provide heat removal from the case

Fiber type

SM1: G.657.A1, furcation tubing \varnothing 0.9 mm
SM3: G.657.B3, furcation tubing \varnothing 0.9 mm
SMP15: PM fiber, PANDA, Corning PM1550, furcation tubing \varnothing 0.9 mm
 Standard fiber length 50 cm

Connector type

FU: FC/UPC
FA: FC/APC
N: no connector
 Other types: on request

Certification

CW: CW mode,
P: pulse mode,
CWP: both CW and pulse mode

This document was updated on 03.05.2019

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ABSOLUTE MAXIMUM RATINGS

Parameter		Value	Unit	Conditions
Laser diode forward current	I_{FL}	140	mA	CW
		500		Pulse
Laser diode reverse voltage	V_{RL}	2	V	
Photodiode reverse voltage	V_{RP}	20	V	
Photodiode forward current	I_{FP}	2	mA	
Operating temperature	T_{op}	-40 ÷ +85	°C	Package U, B
Storage temperature	T_{stg}	-50 ÷ +85	°C	
Soldering temperature	T_{sold}	260	°C	Max. 10 seconds

ELECTRICAL-OPTICAL CHARACTERISTICS (T = 25 °C)

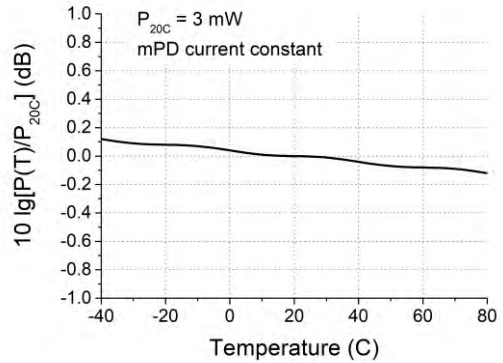
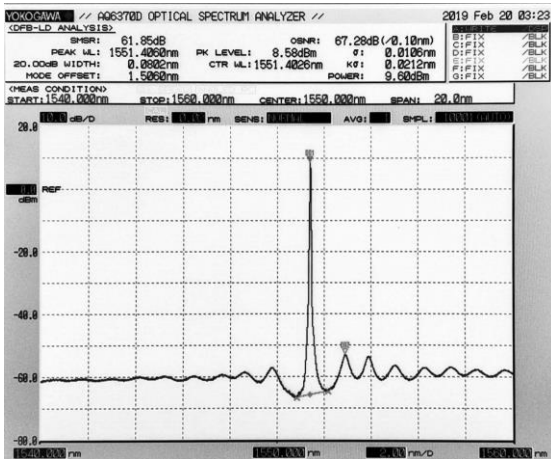
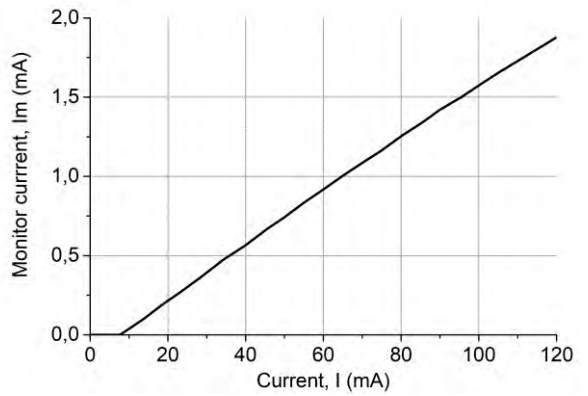
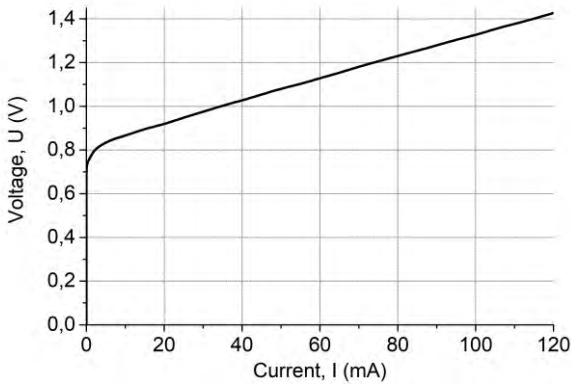
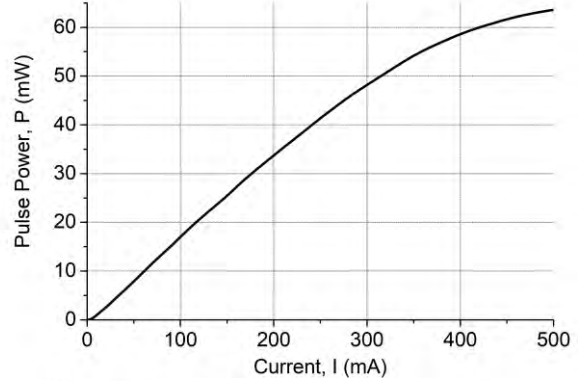
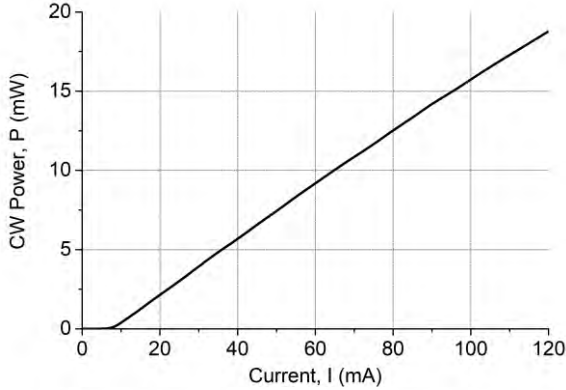
Parameter		Min	Typ	Max	Unit	Conditions
Wavelength	λ	1547	1550	1553	nm	CW, P = 15 mW
Spectral width	$\Delta\lambda$		0.08		nm	CW, P = 15 mW, -20 dB, OSA
Spectral width	$\Delta\nu$			500	kHz	CW, P = 15 mW, delayed self-heterodyne method
Wavelength-temperature coeff.	$d\lambda/dT$		0.1		nm/°C	
Side-mode suppression ratio	SMSR	40	55		dB	CW, P = 15 mW
Threshold current	I_{th}		8	12	mA	CW
Operating current	I_{op}		95	120	mA	CW, P = 15 mW
Pulse optical power	P_p	45	50		mW	Pulse, $I_{op} = 450$ mA
Operating voltage	V_{op}		1.3	1.7	V	CW, P = 15 mW
Slope efficiency	S_e	0.13	0.16		mW/mA	CW
Tracking error	E_r		0.1	0.2	dB	CW, P = 3 mW, T = -20 ÷ +50 °C
Rise and fall times	t_r, t_f		80	120	ps	20% - 80%, Package U, B
Resonance frequency	f_r		6		GHz	
Monitoring output current (PD)	I_m	0.2	1.5	4	mA	CW, P = 15 mW, $V_{rd} = 5$ V
Capacitance (PD)	C_t		10	20	pF	$V_{rd} = 5$ V, f = 1 MHz
Dark current (PD)	I_d			100	nA	$V_{rd} = 5$ V
Polarization extinction ratio	PER	20			dB	CW, SMP15

Pulse mode: pulse duration 10 μ s, duty cycle = 0.01

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

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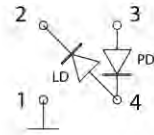
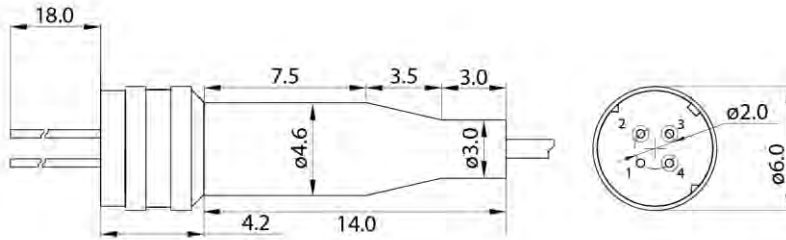
CHARACTERISTICS (T = 25 °C)



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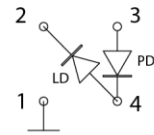
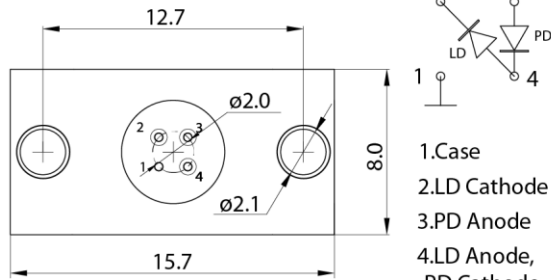
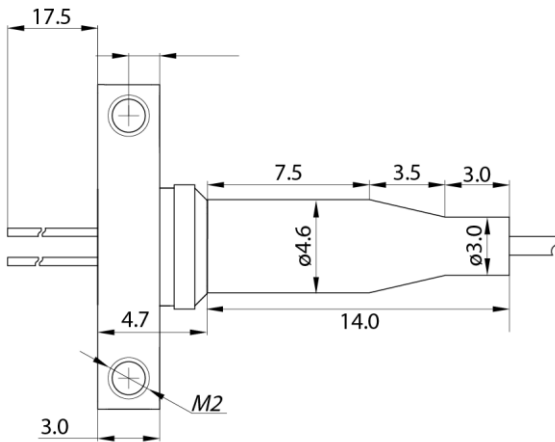
PACKAGE TYPE AND ELECTRICAL CONNECTION

U



- 1. Case
- 2. LD Cathode
- 3. PD Anode
- 4. LD Anode, PD Cathode

B



- 1. Case
- 2. LD Cathode
- 3. PD Anode
- 4. LD Anode, PD Cathode

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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. Laser light is very dangerous if shot directly into human eyes. Do not look directly into the output connector aperture or through optical components such as lenses, prisms, mirrors, microscope objectives etc. Wear protective goggles.
2. 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.
3. Exceeding absolute maximal ratings even for a short time can cause permanent damage of the module.
4. 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.