LDI-850-FP-5

OVERVIEW
LDI-850-FP-5 is the laser diode coupled to an optical fiber and packaged into a hermetic case

MAIN FEATURES
- Wavelength: 850 nm
- Cavity type: Fabry-Perot
- Optical power: up to 5 mW in CW mode in single-mode fiber Nufern 780-HP
- Package types: coaxial or coaxial with bracket, 14 pin DIL
- Built-in monitor photodiode

APPLICATIONS
- Spectroscopy
- Biomedicine
- Sensorics

ORDERING INFORMATION

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LDI-850-FP-5-X-3-X-X-X-X
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Case type
- U: compact coaxial
- B: compact coaxial with double-sided bracket
- T: 14 pins DIL with thermal stabilization (TEC and thermistor)
- E: 14 pins DIL with thermal stabilization (TEC and thermistor)
- Other type on request

Fiber type
- SM05: SM, Nufern 780-HP, furcation tubing ¢0.9 mm
- SM05.5: SM, Fibercore SM800, furcation tubing ¢0.9 mm
- SMP05: PM (PANDA), Fujikura SM85, furcation tubing ¢0.9 mm
- SM1: G.657.A1, furcation tubing ¢0.9 mm
- SM3: G.657.B3, furcation tubing ¢0.9 mm
- MM5: MM 50/125 (OM2), furcation tubing ¢0.9 mm
- MM6: MM 62.5/125 (OM1), furcation tubing ¢0.9 mm
- Other type on request

Connector type
- FU: FC/UPC
- FA: FC/APC
- 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
- CWP: both CW and pulse mode

Fiber length
- 0.5: 500±/-50 mm
- 1.0: 1000±/-100 mm
- Other length on request
### LDI-850-FP-5

#### ABSOLUTE MAXIMUM RATINGS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Unit</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optical output power</td>
<td>$P_0$</td>
<td>6 mW</td>
<td>CW</td>
</tr>
<tr>
<td>Laser diode reverse voltage</td>
<td>$V_{RL}$</td>
<td>2 V</td>
<td></td>
</tr>
<tr>
<td>Photodiode reverse voltage</td>
<td>$V_{RP}$</td>
<td>30 V</td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>$T_{\text{op}}$</td>
<td>-10 - +60 °C</td>
<td>Package B</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>$T_{\text{op}}$</td>
<td>-40 - +50 °C</td>
<td>Package T, E</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>$T_{\text{stg}}$</td>
<td>-40 - +85 °C</td>
<td></td>
</tr>
<tr>
<td>Soldering temperature</td>
<td>$T_{\text{sold}}$</td>
<td>260 °C</td>
<td>Max. 10 seconds</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>MIN</th>
<th>TYP</th>
<th>MAX</th>
<th>Unit</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength</td>
<td>$\lambda$</td>
<td>845</td>
<td>850</td>
<td>855</td>
<td>nm</td>
</tr>
<tr>
<td>Spectral width</td>
<td>$\Delta \lambda$</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>nm</td>
</tr>
<tr>
<td>Threshold current</td>
<td>$I_{\text{th}}$</td>
<td>9</td>
<td>12</td>
<td></td>
<td>mA</td>
</tr>
<tr>
<td>Operating current</td>
<td>$I_{\text{op}}$</td>
<td>22</td>
<td>25</td>
<td></td>
<td>mA</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>$V_{\text{op}}$</td>
<td>1.7</td>
<td>2.5</td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>Slope efficiency</td>
<td>$S_e$</td>
<td>0.30</td>
<td>0.38</td>
<td>0.38</td>
<td>W/A</td>
</tr>
<tr>
<td>Monitor current</td>
<td>$I_{\text{m}}$</td>
<td>0.1</td>
<td>0.3</td>
<td>0.5</td>
<td>mA</td>
</tr>
<tr>
<td>Pulse power</td>
<td>$P_p$</td>
<td>25</td>
<td>30</td>
<td>30</td>
<td>Pulse, $I_p = 80mA$</td>
</tr>
<tr>
<td>Pulse wavelength</td>
<td>$\lambda_p$</td>
<td>845</td>
<td>855</td>
<td>865</td>
<td>Pulse, $I_p = 80mA$</td>
</tr>
</tbody>
</table>
LASER DIODE

LDI-850-FP-5

PACKAGE U

SIDE VIEW

1.2
3.0
7.5
3.5
3.0

3-Ø0.45
6.5
Ø5.6

3-Ø0.25
or Ø0.9

BACK VIEW

PINOUT #3

2.0

Fiber length 500+/−50, 1000+/−100, or by request

Connector FC/UPC, FC/APC, no connector, or by request

PACKAGE B

SIDE VIEW

3.0
12.7
1.7
7.5
3.5
3.0

3-Ø0.45
6.0
Ø5.6

1.5

Connector FC/UPC, FC/APC, no connector, or by request

BACK VIEW

PINOUT #3

15.7
8.0

Fiber length 500+/−50, 1000+/−100, or by request

PACKAGE T

1. TEC Anode
2. -
3. -
4. -
5. LD Anode
6. -
7. PD Cathode, LD Anode
8. PD Anode
9. LD Cathode
10. LD Anode
11. Thermistor
12. Thermistor
13. -
14. TEC Cathode

TEC: \( I_{\text{op}}=0.7 \, A, \, U_{\text{op}}=3.9 \, V, \, Q_{\text{op}}=1.4 \, W, \, AC R=4.7 \, \text{Ohm} \), \( \Delta T_{\text{op}}=72 \, K \)

Thermistor: \( R_t=10^6\exp(3600/1(T/K)-1/298)) \, \text{kOhm} \)

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Laser Diode

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Package E

Pinout #2, #3
- TEC Anode
- 2. -
- 3. -
- 4. -
- 5. LD Anode
- 6. -
- 7. PD Cathode, LD Anode
- 8. PD Anode
- 9. LD Cathode
- 10. LD Anode
- 11. Thermistor
- 12. Thermistor
- 13. -
- 14. TEC Cathode

TEC: I_{max}=0.7A, U_{max}=3.9V, Q_{max}=1.4W,
AC R = 4Ω Ohm, ∆T_{max} = 72 K
Thermistor:
R_t=10^6*EXP(3600*(1/T[K]-1/298)) kOhm
LASER DIODE

LDI-850-FP-5

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.