DFB LASERS FOR SPECTROSCOPY

AT A GLANCE

- Grating or gas filters replaced by laser diode
- Simplified measurement setup
- No moving parts

Features

- Excellent single wavelength optical sources for gas analysis or similar applications (1250 – 1700 nm)
- Laser diode with multi quantum well structure
- Proven reliability, ageing tests available
- RoHS compliance
- Mounted on compact hermetically sealable headers, cooled TO-cans or fibre-pigtailed modules
- Emission wavelengths > 1700 nm on request

Applications

- Detection of toxic gases
- Process control, e.g. in waste combustion
- Very demanding environment
- Humidity control
- CH₄ detection, etc. ...
Available wavelengths

- 1278, 1393, 1512, 1650 nm
- Additional wavelengths (1250–1750 nm) / higher optical output power on request

### Specifications

<table>
<thead>
<tr>
<th></th>
<th>min.</th>
<th>typical</th>
<th>max.</th>
<th>unit</th>
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<td>25</td>
<td>70</td>
<td>°C</td>
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<tr>
<td>operating current</td>
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<td>200</td>
<td>mA</td>
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<td>mA</td>
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<td>Ω</td>
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<td>mW</td>
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<tr>
<td>linewidth</td>
<td>–</td>
<td>–</td>
<td>20</td>
<td>MHz</td>
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</table>

### Typical Performance

- **T = 35°C**
  - Bias voltage, V:
    - T = 15°C: 0.00 V
    - T = 25°C: 0.40 V
    - T = 35°C: 0.80 V
- **Pout > 3mW**
  - Emission wavelength:
    - T = 15°C: 1394 nm
    - T = 25°C: 1393 nm
    - T = 35°C: 1392 nm
- **ΔP/T = -0.11 mW/°C (40mA)**
  - Series resistance:
    - T = 15°C: 1.0 Ω
    - T = 25°C: 1.2 Ω
    - T = 35°C: 1.2 Ω
- **df dla = 12 pm/mA, 31 pm/°C (3 mW), 96 pm/°C (5 mW)**
  - Threshold current:
    - T = 15°C: 25 mA
    - T = 25°C: 45 mA
    - T = 35°C: 45 mA
- **df λ/dl 8 - 15 pm/°C**
  - Operation temperature:
    - T = 15°C: 0°C
    - T = 25°C: 25°C
    - T = 35°C: 70°C

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**The Fraunhofer HHI**

One of the prime research and development foci of the Fraunhofer Heinrich Hertz Institute lies in photonic networks, components and systems and their application in fields such as digital media.

**Contact**

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