

RIDGE WAVEGUIDE LASER with AR-COATING

GaAs Semiconductor Laser Diode

Tunable Fabry-Perot Laser for External Cavity Operation



PRELIMINARY SPECIFICATION

RWE Laser

EYP-RWE-0870-06010-0750-SOT01-0000**General Product Information**

| Product | Application |
|--|--------------|
| tunable 870 nm Fabry-Perot Laser | Spectroscopy |
| for use in an External Cavity Diode Laser (ECDL) | |
| sealed SOT Housing | |
| Monitor Diode | |

**Absolute Maximum Ratings**

| | Symbol | Unit | min | typ | max |
|---------------------------------|-----------|------|-----|-----|-----|
| Storage Temperature | T_S | °C | -20 | | 85 |
| Operational Temperature at Case | T_C | °C | -20 | | 50 |
| Forward Current | I_F | mA | | | 200 |
| Reverse Voltage | V_R | V | | | 0 |
| Output Power (extracavity) | P_{opt} | mW | | | 100 |

Stress in excess of the Absolute Maximum Ratings can cause permanent damage to the device. Operation at the Absolute Maximum Rating for extended periods of time can adversely affect the device reliability and may lead to reduced operational life.

Recommended Operational Conditions

| | Symbol | Unit | min | typ | max |
|---------------------------------|--------|------|-----|-----|-----|
| Operational Temperature at case | T_C | °C | 15 | | 40 |
| Forward Current | I_F | mA | | | 180 |

Characteristics at T_{amb} 25 °C at Begin Of Life

| Parameter | Symbol | Unit | min | typ | max |
|-----------------------------|-----------------------|---------------|-----|-------------------|-------------------|
| Center Wavelength | λ_c | nm | | 870 | |
| Tuning Range | $\Delta\lambda_{tun}$ | nm | 810 | | 880 |
| Output Power (extracavity) | P_{opt} | mW | | 50 | |
| Cavity Length | L | μm | | 750 | |
| Reflectivity at Front Facet | R_{ff} | | | $3 \cdot 10^{-4}$ | $1 \cdot 10^{-3}$ |
| Polarization | | | | TE | |

Measurement Conditions / Comments

Tuning range and output power are estimated from the gain profile of the laser. The actual achieved wavelength and power are strongly influenced by the external cavity. Therefore eagleyard Photonics will give no guarantee on these parameters.

Polarization parallel to Pin 2 - Pin 3 -plane

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RWE/RWL



BAL



DFB/DBR



TPL/TPA

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| Parameter | Symbol | Unit | min | typ | max |
|-------------------------------|--------------------------------------|---------------------------|-----|-----|-----|
| Monitor Detector Responsivity | $I_{\text{mon}} / P_{\text{opt.ic}}$ | $\mu\text{A} / \text{mW}$ | 1 | | 10 |
| Reverse Voltage Monitor Diode | $U_{\text{R MD}}$ | V | 3 | | 5 |

Measurement Conditions / Comments $U_{\text{R MD}} = 5 \text{ V}$, $P_{\text{opt.ic}}$: intracavity power of the ECDL

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Package Dimensions

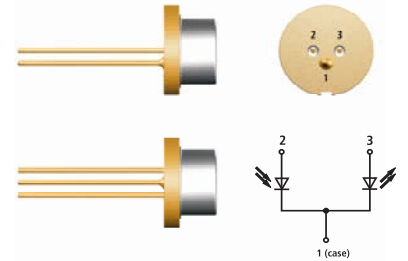
| | Symbol | Unit | min | typ | max |
|------------------|----------|------|------|------|------|
| Emission Plane | d_{EP} | mm | 2.30 | 2.45 | 2.50 |
| Housing Diameter | d | mm | | 9.0 | |
| Pin Length | l | mm | | 14.0 | |

reference plane: top side of TO header

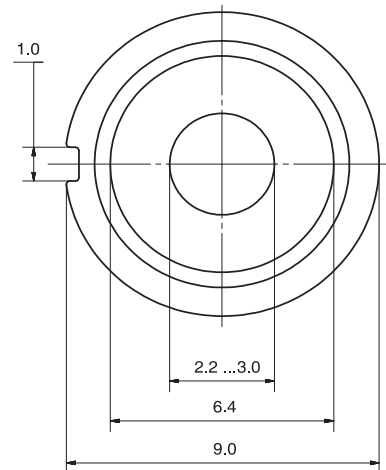
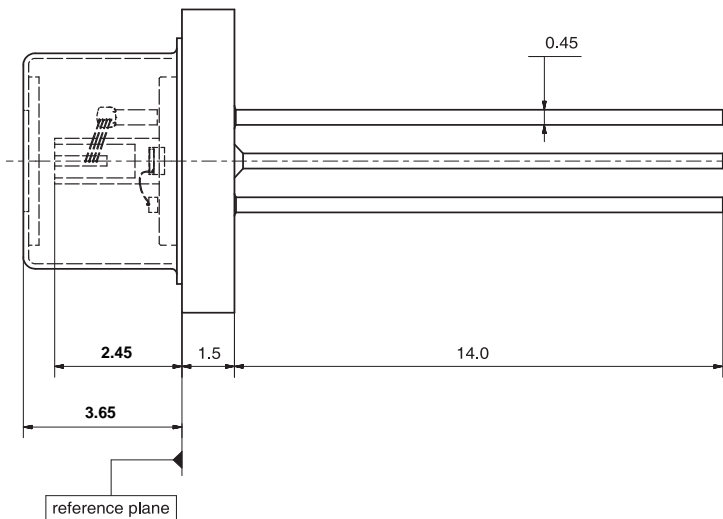
Package Pinout

M-Type

| | |
|-----------------|---|
| Ground | 1 |
| Photo Diode (+) | 2 |
| Laser (+) | 3 |



Package Drawings



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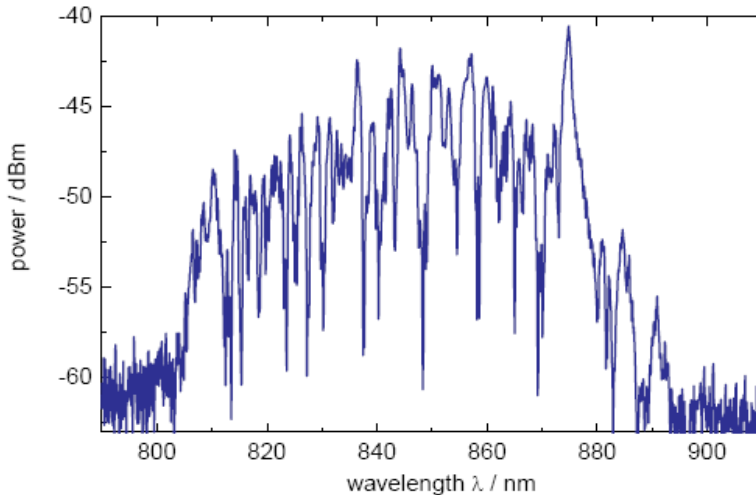
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Typical Measurement Results

Emission Spectrum measured without external feedback



Performance figures, data and any illustrative material provided in this specification are typical and must be specifically confirmed in writing by eagleyard Photonics before they become applicable to any particular order or contract. In accordance with the eagleyard Photonics policy of continuous improvement specifications may change without notice.

Unpacking, Installation and Laser Safety

Unpacking the laser diodes should only be done at electrostatic safe workstations (EPA). Though protection against electro static discharge (ESD) is implemented in the laser package, charges may occur at surfaces. Please store this product in its original package at a dry, clean place until final use. During device installation, ESD protection has to be maintained.

The RWE diode type is known to be sensitive against thermal stress. It should not be operated without appropriate optical feedback from an external cavity. Operating at moderate temperatures on proper heat sinks will contribute to a long lifetime of the diode.

The laser emission from this diode is close to the invisible infrared region of the electromagnetic spectrum. Avoid direct and/or indirect exposure to the free running beam. Collimating the free running beam with optics as common in optical instruments will increase threat to the human eye.

Each laser diode will come with an individual test protocol verifying the parameters given in this document.

