

## EYP-BAL-0670-00010-1510-SOT23-0016

Revision 0.70

18.01.2017

## MULTI MODE LASER DIODES

### Broad Area Laser

#### General Product Information

| Product                  | Application |
|--------------------------|-------------|
| 670 nm Broad Area Laser  | Sensing     |
| for Pulse Mode Operation |             |
| sealed TO Housing        |             |

#### Absolute Maximum Ratings

| Parameter                       | Symbol         | Unit | min | typ | max |
|---------------------------------|----------------|------|-----|-----|-----|
| Storage Temperature             | $T_S$          | °C   | -40 |     | 85  |
| Operational Temperature at Case | $T_C$          | °C   | -20 |     | 70  |
| Peak Current                    | $I_{F Peak}$   | A    |     |     | 16  |
| Reverse Voltage                 | $V_R$          | V    |     |     | 2   |
| Peak Output Power               | $P_{opt Peak}$ | W    |     |     | 11  |
| Forward Voltage at Peak         | $V_F$          | V    |     |     | 3   |

#### Measurement Conditions / Comments

Every condition of the Absolute Maximum Ratings has to be kept during operation

see Pulse Mode Conditions

see Pulse Mode Conditions

see Pulse Mode Conditions

#### Recommended Operational Conditions

| Parameter                       | Symbol         | Unit | min | typ | max  |
|---------------------------------|----------------|------|-----|-----|------|
| Operational Temperature at Case | $T_C$          | °C   | 15  |     | 40   |
| Forward Current                 | $I_{F Peak}$   | A    |     |     | 14.5 |
| Output Power                    | $P_{opt Peak}$ | W    |     | 10  |      |

#### Measurement Conditions / Comments

see Pulse Mode Conditions

see Pulse Mode Conditions

#### Characteristics at 25° C at Begin Of Life

| Parameter                             | Symbol          | Unit          | min | typ  | max |
|---------------------------------------|-----------------|---------------|-----|------|-----|
| Center Wavelength                     | $\lambda_C$     | nm            | 650 | 670  | 690 |
| Spectral Width (FWHM)                 | $\Delta\lambda$ | nm            |     | 5    |     |
| Temperature Coefficient of Wavelength | $d\lambda / dT$ | nm / K        |     | 0.3  |     |
| Peak Output Power @ $I_F = 14.5$ A    | $P_{opt Peak}$  | W             |     | 10   |     |
| Threshold Current                     | $I_{th}$        | A             |     | 0.7  |     |
| Differential Series Resistance        | $R_S$           | $\Omega$      |     | 0.1  |     |
| Cavity Length                         | L               | $\mu\text{m}$ |     | 1500 |     |
| Stripe width                          | Ws              | $\mu\text{m}$ |     | 100  |     |

#### Measurement Conditions / Comments

see Pulse Mode Conditions

see Pulse Mode Conditions



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#### Characteristics at 25° C at Begin Of Life cont'd

| Parameter                       | Symbol           | Unit | min | typ        | max |
|---------------------------------|------------------|------|-----|------------|-----|
| Divergence parallel (FWHM)      | $\Theta_{  }$    | °    | 5   | 10         | 13  |
| Divergence perpendicular (FWHM) | $\Theta_{\perp}$ | °    | 25  | 30         | 35  |
| Polarization                    |                  |      |     | TE         |     |
| Spectral Mode (longitudinal)    |                  |      |     | Multi Mode |     |

#### Measurement Conditions / Comments

E field parallel to Pin 2 - Pin 3 - plane

#### Pulse Mode Conditions

| Parameter             | Symbol | Unit    | min | typ               | max |
|-----------------------|--------|---------|-----|-------------------|-----|
| Pulse Length          | $t_p$  | $\mu$ s |     | 1                 |     |
| Pulse Repetition Rate | RR     | kHz     |     | 3.3               |     |
| Number of Pulses      | $N_p$  |         |     | $3.5 \times 10^9$ |     |

#### Measurement Conditions / Comments

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### Package Dimensions

| Parameter                       | Symbol   | Unit | min | typ  | max  |
|---------------------------------|----------|------|-----|------|------|
| Height of Emission Plane        | $d_{EP}$ | mm   |     | 3.65 |      |
| Excentricity of Emission Center | R        | mm   |     |      | 0.12 |
| Pin Length                      | l        | mm   |     | 14.0 |      |

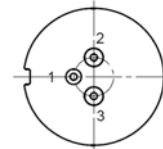
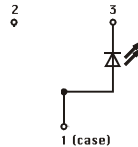
### Measurement Conditions / Comments

reference plane A: top side of TO header

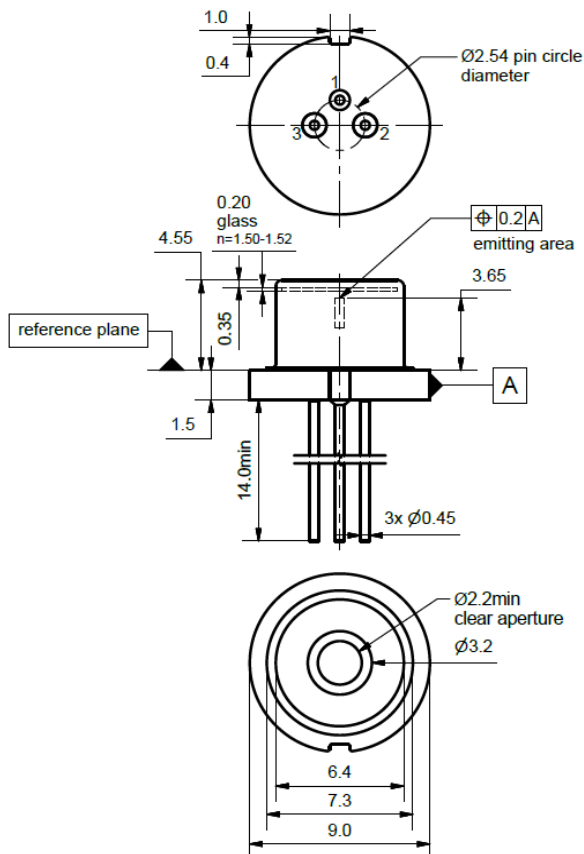
reference B: center of outer diameter of header

### Package Pinout

- 1 Laser Diode Anode, Case
- 2 not connected
- 3 Laser Diode Cathode



### Package Drawings



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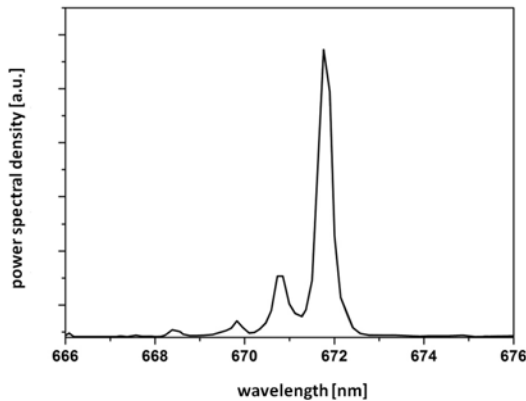
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### Typical Measurement Results

Spectrum



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 BAL diode type is known to be sensitive against thermal stress. Operating at moderate temperatures on proper heat sinks will contribute to a long lifetime of the diode.

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.

