

## GCB0850030TC050MXXXX

Curved stripe gain chip on TO-header



## Features:

- Optimized for wavelength locked operation in external cavity
- Broad hopping free tuning range
- High SMSR
- No self-lasing up to maximum operating current
- TE polarization

## Applications:

- External cavity diode lasers
- Tunable laser sources

## Recommended Operating Conditions

| Parameter            | Min. | Typ. | Max. | Unit |
|----------------------|------|------|------|------|
| Heatsink Temperature | 20   | 25   | 30   | °C   |
| Forward Current*     |      | 150  | 200  | mA   |
| Optical Feedback**   |      | 20   |      | %    |

\*No self-lasing up to maximum current

\*\* doesn't include coupling efficiency to chip.

## Tunability Characteristics

Batch qualified @ CW, 25C, 200mA, external cavity in Littman configuration with 20% feedback

| Parameter                                  | Min. | Typ. | Max. | Unit |
|--|------|------|------|------|
| Wavelength of Maximum Power                | 840  | 850  | 860  | nm   |
| Output Power @ 850nm                       | 50   |      |      | mW   |
| Central Wavelength of Tuning Range         | 830  | 845  | 860  | nm   |
| Tuning Range Width (full)                  |      | 30   |      | nm   |
| Side-Mode Suppression Ratio (SMSR) @ 850nm |      | 45   |      | dB   |

## Amplified Spontaneous Emission (ASE) Characteristics

Tested for each sample @ CW, 25C, 200mA, without feedback

| Parameter                        | Min. | Typ. | Max. | Unit |
|----------------------------------|------|------|------|------|
| Output Power                     |      | 3    |      | mW   |
| Forward Voltage                  |      | 1.7  | 2    | V    |
| Mean Wavelength                  |      | 845  |      | nm   |
| Bandwidth (FWHM)*                |      | 16   |      | nm   |
| Fast Axis Beam Divergence (FWHM) | 28   | 32   | 36   | deg  |
| Slow Axis Beam Divergence (FWHM) | 4    | 8    | 12   | deg  |
| Polarization                     |      |      | TE   |      |

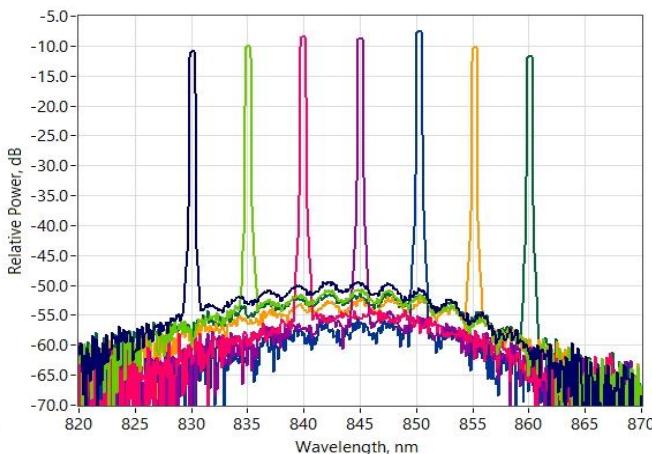
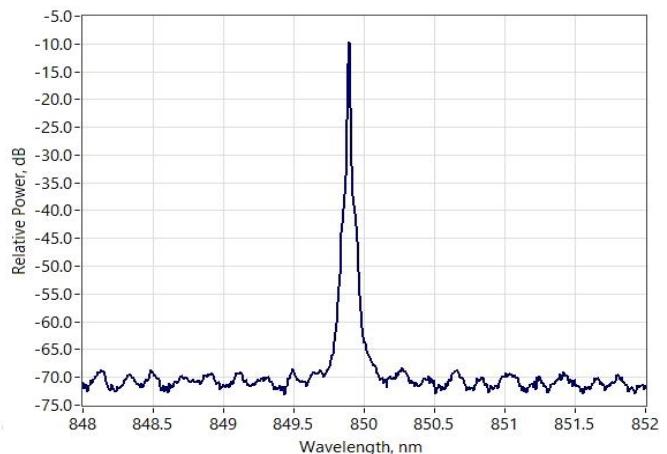
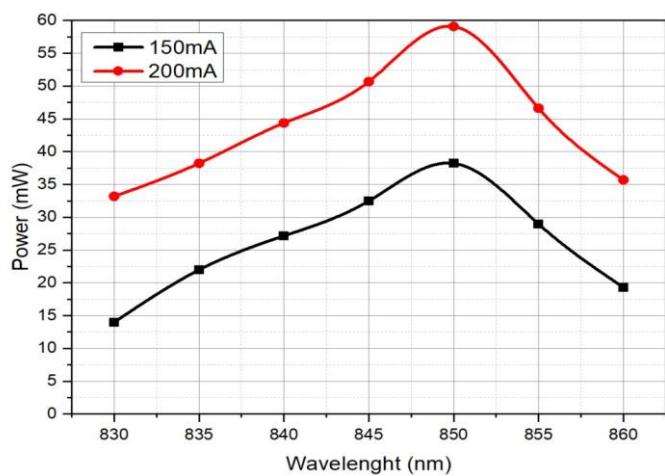
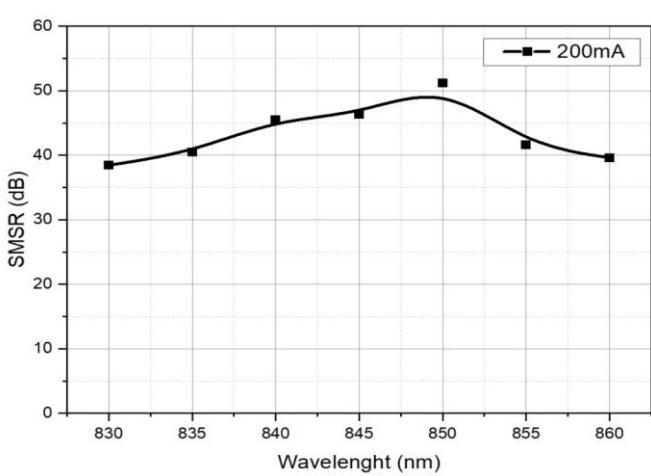
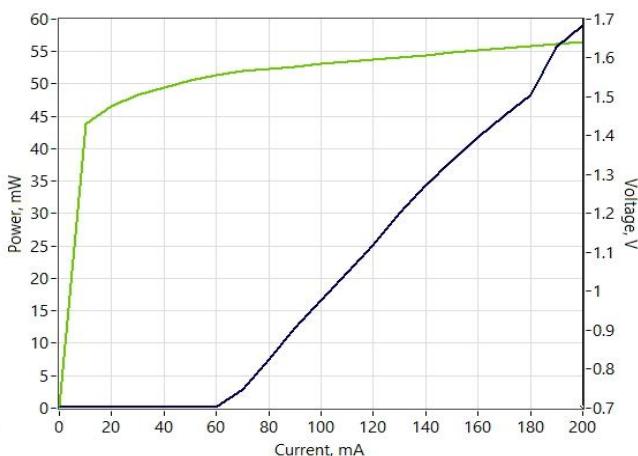
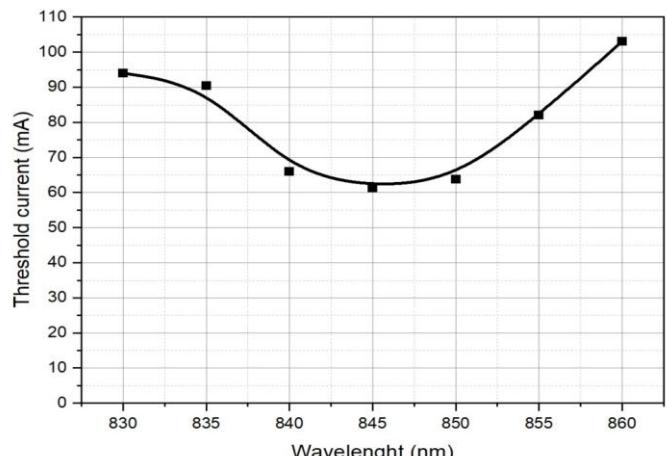
\* Radiation coupled in single-mode fiber without lens and measured by OSA with 1 nm resolution.

## Chip Parameters

| Parameter                        | Min. | Typ. | Max. | Unit |
|----------------------------------|------|------|------|------|
| Chip length                      |      | 2    |      | mm   |
| Back-reflection from Front Facet |      |      | 0.1  | %    |
| Back-reflection from Back Facet  | 90   | 99   |      | %    |

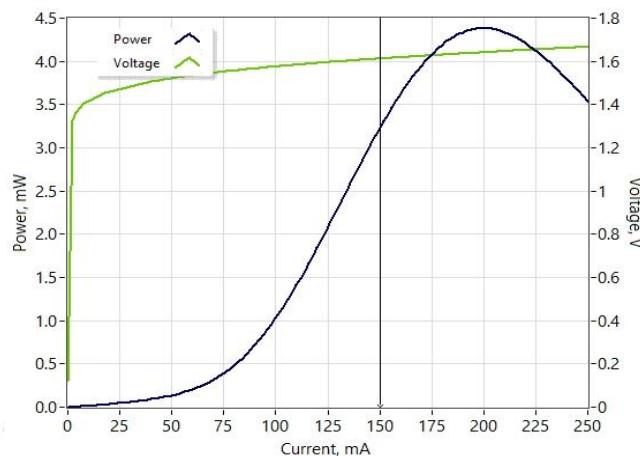
**Typical Performance in External Cavity (for reference only)**

@ CW, recommended operating conditions, Littman configuration

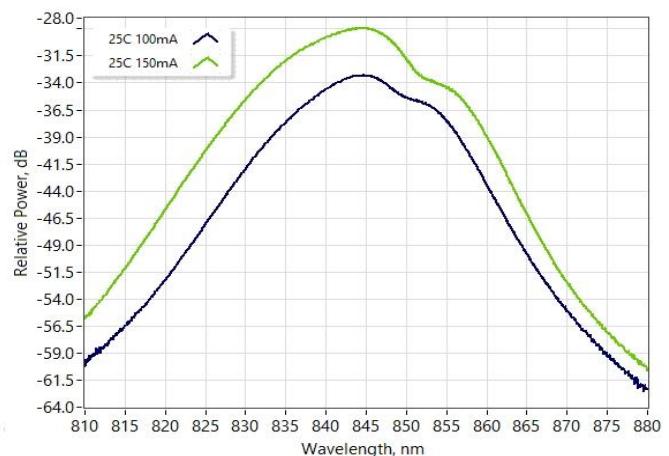
**Optical spectra (res. 0.5 nm)**

**Optical spectrum (res. 10 pm)**

**Output power spectra**

**Integrated Signal/ASE ratio**

**Output power @ 850nm**

**Threshold current**


## Typical Performance without feedback (for reference only)

L-I-V curve



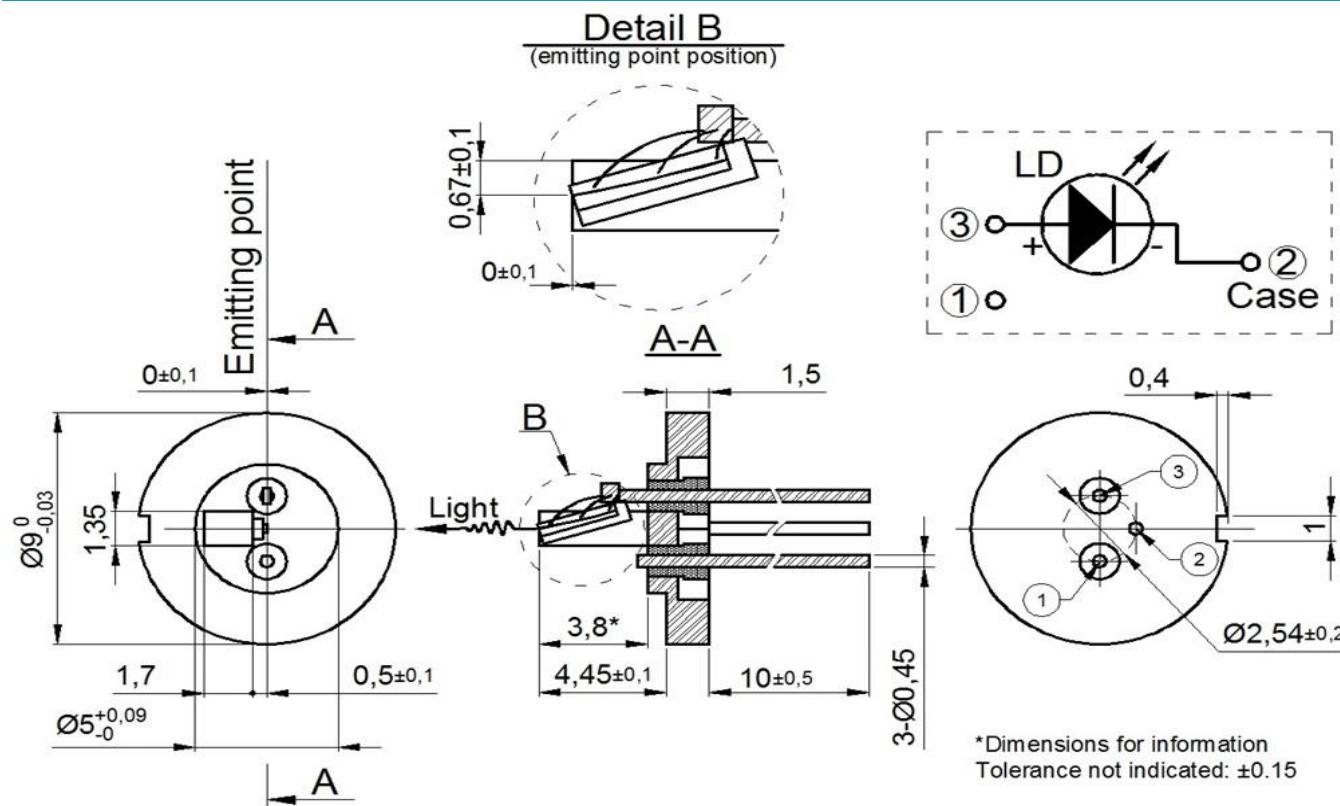
ASE spectra (res. 1nm)



## Absolute Maximum Ratings

| Parameter   | Min | Max | Unit |
|---|-----|-----|------|
| Forward Current @ 20% feedback                                |     | 250 | mA   |
| Optical Feedback (doesn't include coupling to a chip)         |     | 30  | %    |
| Reverse Voltage   |     | 1   | V    |
| Operating temperature (above dew point)                       | -10 | 60  | °C   |
| Storage Temperature (in original hermetically sealed package) | -40 | 85  | °C   |

## Drawing



\*Dimensions for information  
 Tolerance not indicated:  $\pm 0.15$

## Safety and Operating Instructions

The laser light emitted from this device is invisible and can be dangerous to the human eye. Avoid looking directly into the fiber output or into the collimated beam along its optical axis when the device is in operation. Proper laser safety eyewear must be worn during operation.

Absolute Maximum Ratings may be applied to the device for short period of time only. Exposure to maximum ratings for extended period of time or exposure above one or more max ratings may cause damage or affect the reliability of the device.

Operating the product outside of its maximum ratings may cause device failure or a safety hazard. Power supplies used with the device must be employed such that the maximum peak optical power cannot be exceeded. A proper heatsink for the device on thermal radiator is required, sufficient heat dissipation and thermal conductance to the heatsink must be ensured.

The device is an open-heatsink laser diode; it may be operated in clean atmosphere or dust-protected housing only. Operating temperature and relative humidity must be controlled to avoid water condensation on the laser facets. Any contamination or contact of the laser facet must be avoided.

**ESD PROTECTION** - Electrostatic discharge is the primary cause of unexpected product failure. Take extreme precaution to prevent ESD. Use wrist straps, grounded work surfaces and rigorous antistatic techniques when handling the product.



NOTE: Innolume product specifications are subject to change without notice