

# High Power Laser Diode TO-Cans



## Part Number: TO9-170

High Power TO9 Package  
Single-Mode Fabry-Perot  
Pulsed Wavelength at 1625nm  
Lensed Options Available



## Features

- High Output Power
- High Dynamic Range
- High Efficiency
- Standard TO9
- Cost Effective

## Application

- Telecom OTDR
- Laser Range Finder
- Target Illumination



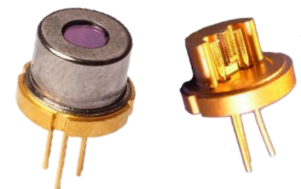
SemiNex delivers the highest available power at infrared wavelengths between 12xx and 19xx nm. When necessary, we will further optimize the design of our InP & GaSb laser chips to meet our customers' specific optical and electrical performance needs. Diodes, bars and packages are tested to meet customer and market performance demands. Typical results and packaging options are shown. Contact SemiNex for additional details or to discuss your specific requirements.

# High Power Laser Diode TO-Cans



## Specification

TO9-170



| Optical                   | Symbol               | Typ.      | Units                |
|---------------------------|----------------------|-----------|----------------------|
| Center Wavelength         | $\lambda_c$          | 1625      | nm ( $\pm 20$ )      |
| Output Power (<10ns)*     | $P_{out}$            | 1.5       | Watts ( $\pm 10\%$ ) |
| Output Power (150ns)*     | $P_{out}$            | 0.7       | Watts ( $\pm 10\%$ ) |
| Emitter Width             | $W$                  | 4         | $\mu m$              |
| Spectral Width FWHM       | $\Delta\lambda$      | 10        | nm                   |
| Slope Efficiency          | $\eta$               | 0.3       | W/A                  |
| Fast Axis Div.            | $\theta_{\perp}$     | 28        | deg FWHM             |
| Slow Axis Div.            | $\theta_{\parallel}$ | 10        | deg FWHM             |
| Electrical                | Symbol               |           | Units                |
| Power Conversion Eff.     | $\eta$               | 8         | %                    |
| Operating Current (<10ns) | $I_{op}$             | 5         | A                    |
| Operating Current (150ns) | $I_{op}$             | 2.5       | A                    |
| Threshold Current         | $I_{TH}$             | 0.05      | A                    |
| Operating Voltage         | $V_{op}$             | 4.5       | V                    |
| Duty Cycle                | DC                   | 0.1       | %                    |
| Mechanical                | Symbol               | Range     | Units                |
| Operating Temp.**         |                      | -40 to 60 | $^{\circ}C$          |
| Storage Temp.             |                      | -40 to 80 | $^{\circ}C$          |

\*Specified values are rated at a constant heat sink temperature of 20°C.

\*\*High temperature operation will reduce performance and MTTF.  
Unless otherwise indicated all values are nominal.

\*Available Lenses & Caps

| Part Number | Description*  |
|-------------|---|
| TO9-170     | TO9 Uncapped, Fast Axis: 30° FWHM, Slow Axis: 10° FWHM  |
| TO9-170-114 | TO9 4.6mm Tall Cap, Fast Axis: 30° FWHM, Slow Axis: 10° FWHM  |
| TO9-170-115 | TO9 5.8mm Tall Cap, Lens Collimated, Fast Axis: 0.3° FWHM, Slow Axis: 10° FWHM                                  |
| TO9-170-140 | TO-9 5.8mm Tall Cap, Lens Matched $f=171\mu m$ , 5.0mm Lg,<br>Fast Axis: 9°, Slow Axis: 12° 1/e <sup>2</sup> ** |
| TO9-170-161 | TO9 5.8mm Tall Cap, Fast Axis: 30° FWHM, Slow Axis: 10° FWHM  |

\*Lensing specifications are typical values provided based on best-effort measurements.

\*\*Single mode TO9s with matched lenses deliver a 3:4 (fast: slow) beam profile at best effort.

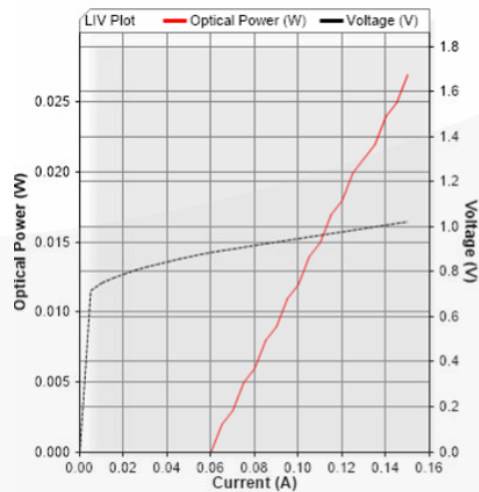
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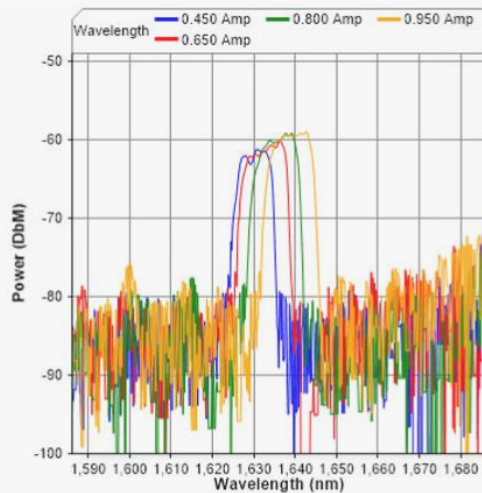
## SemiNex Laser Diodes TO9-170

### Graphs & Data

#### Typical TO9 L-I-V Characteristics



#### Typical TO9 Output Spectrum

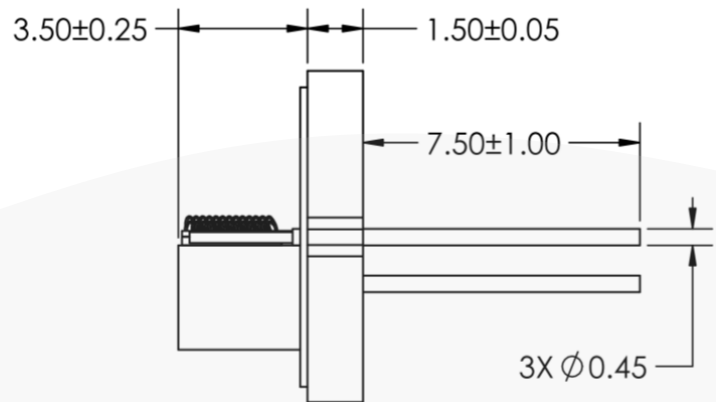
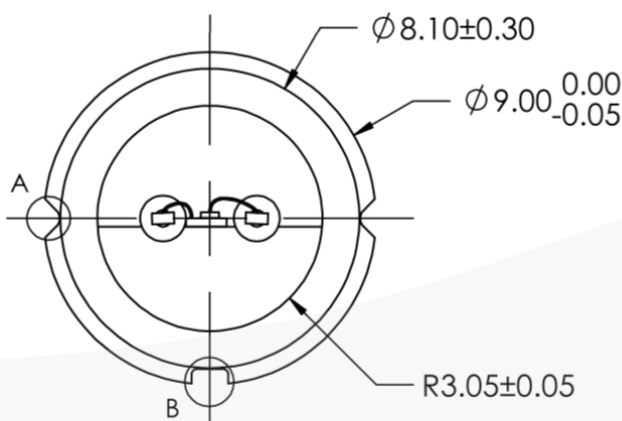


\*Tested with 150nsec pulse @ 0.1% Duty Cycle

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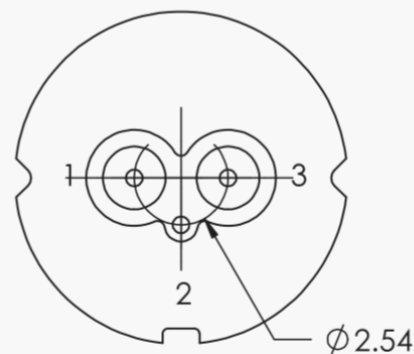


## Mechanical Drawing TO9-170



### PIN OUT:

1. LD CATHODE ( - )
2. CASE
3. LD ANODE ( + )



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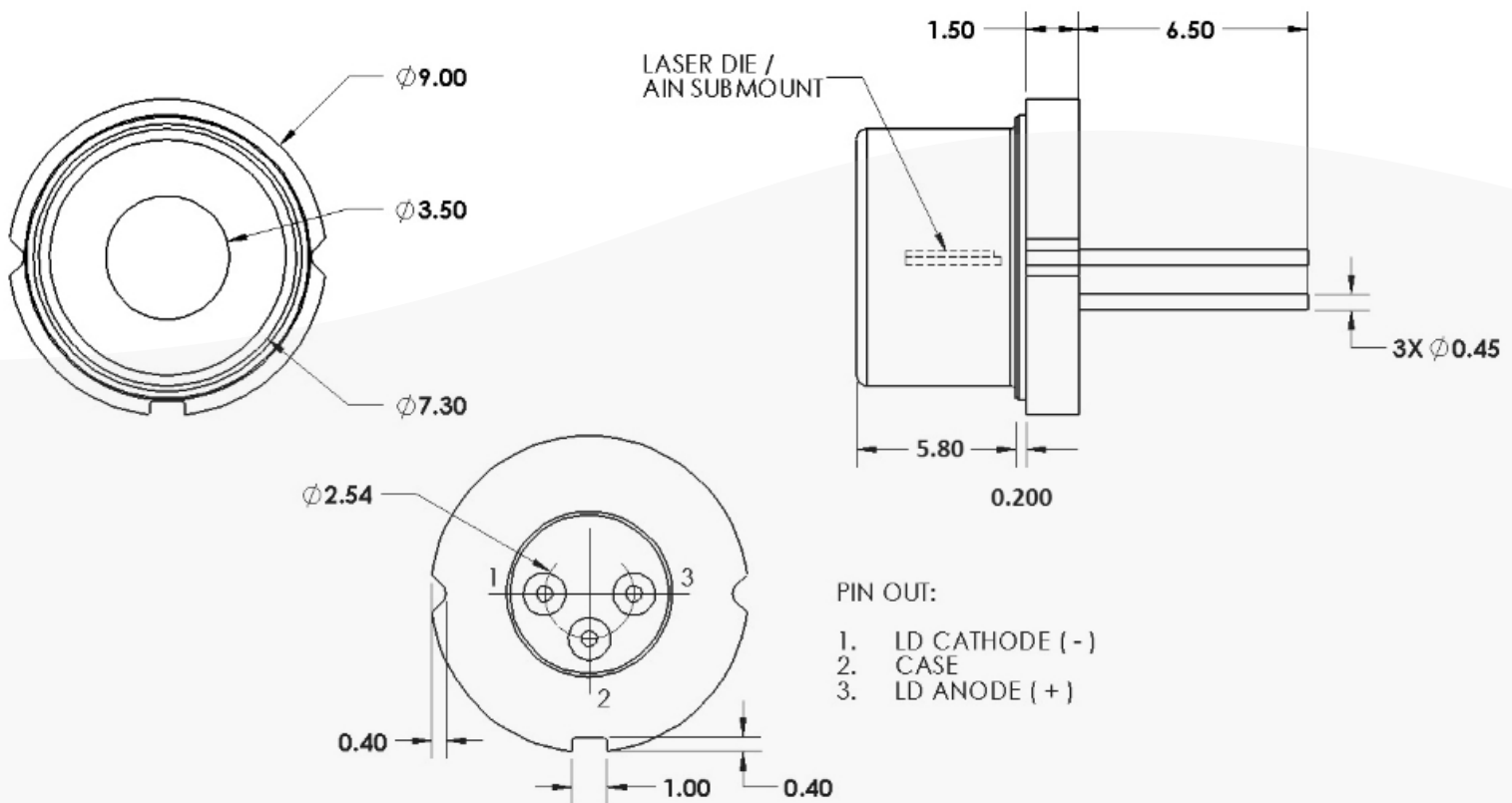


## Mechanical Drawing

TO9-170-115

TO9-170-140

TO9-170-161



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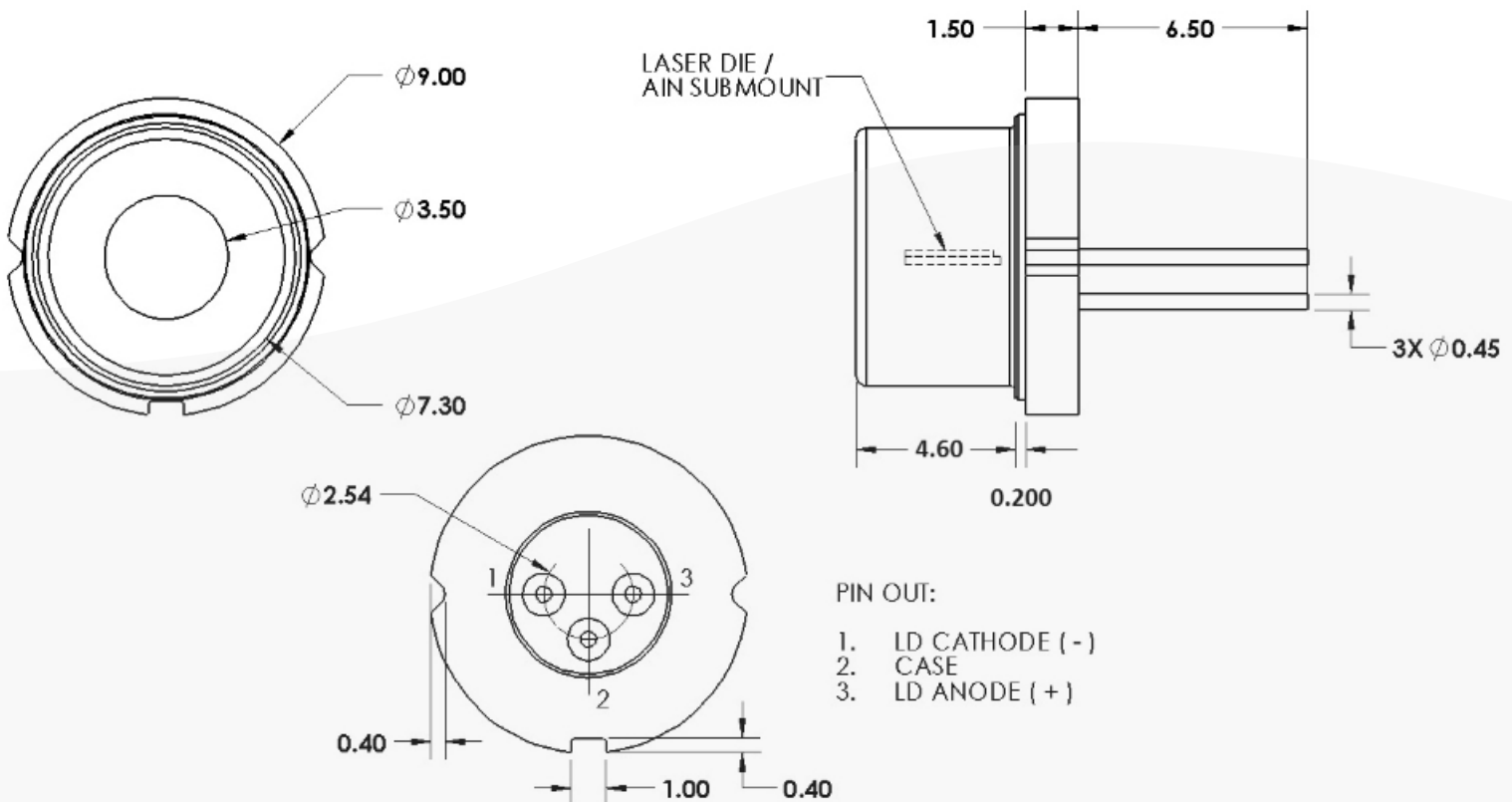
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## Mechanical Drawing TO9-170-114



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