

High Power Laser Diode Chip



Part Number: CHP-267

High Power Triple Junction Chip
Multi-Mode Fabry-Perot
Pulsed Wavelength at 1550nm



Features

- High Output Power
- High Dynamic Range
- High Efficiency
- Standard Bare Die
- Cost Effective

Application

- Home Medical
- Laser Rangefinders
- Target Illumination
- Military Systems
- TOF LiDAR for Automotive and Drones



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.

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Specification

CHP-267



| Optical | Symbol | Typ. | Units |
|---------------------------|----------------------|-----------|----------------------|
| Center Wavelength | λ_c | 1550 | nm (± 20) |
| Output Power (<10ns)* | P_{out} | 100 | watts ($\pm 10\%$) |
| Output Power (150ns)* | P_{out} | 75 | watts ($\pm 10\%$) |
| Chip Cavity Length | CL | 2500 | μm |
| Emitter Width | W | 350 | μm |
| Spectral Width FWHM | $\Delta\lambda$ | 22 | nm |
| Slope Efficiency | η | 1 | W/A |
| Fast Axis Div. | θ_{\perp} | 28 | deg FWHM |
| Slow Axis Div. | θ_{\parallel} | 12 | deg FWHM |
| Electrical | Symbol | | |
| Power Conversion Eff. | η | 10 | % |
| Operating Current (<10ns) | I_{op} | 100 | A |
| Operating Current (150ns) | I_{op} | 75 | A |
| Threshold Current | I_{TH} | 2 | A |
| Operating Voltage | V_{op} | 10 | V |
| Duty Cycle | DC | 0.1 | % |
| Mechanical | | 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 $^{\circ}C$.

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

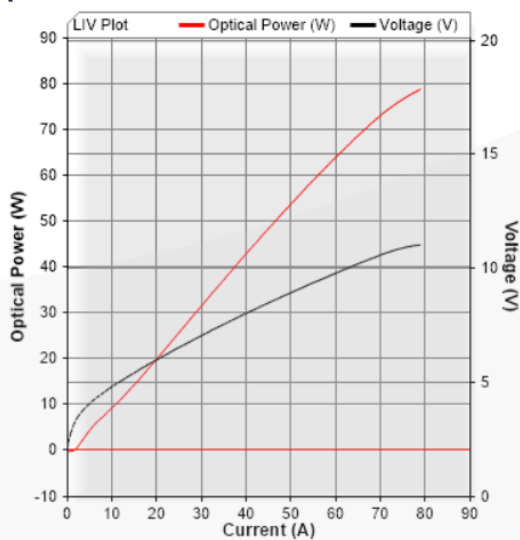
High Power Laser Diode Chip



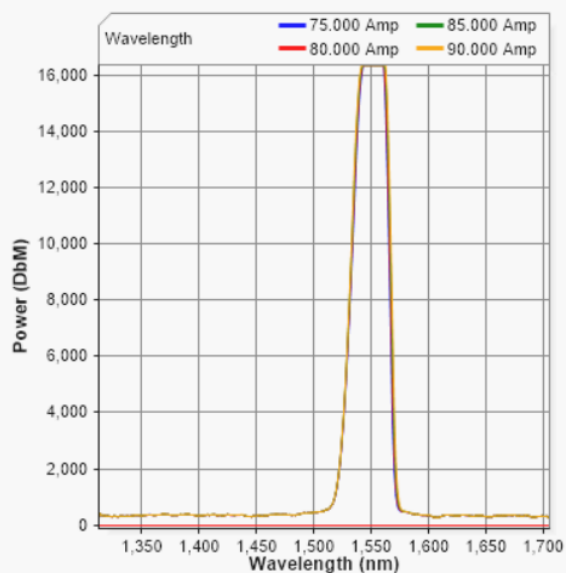
SemiNex Laser Diodes CHP-267

Graphs & Data

Typical CHP L-I-V Characteristics



Typical CHP Output Spectrum



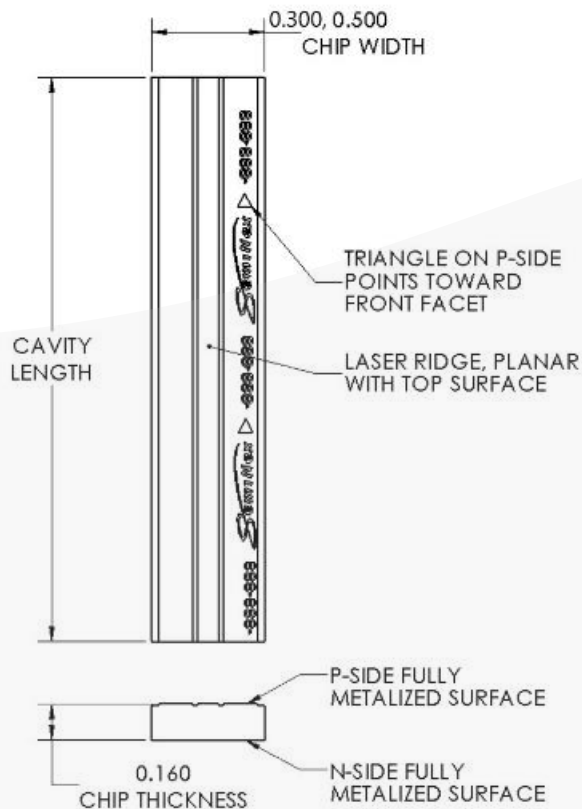
*Tested with 150nsec pulse @ 0.1% Duty Cycle

*Graphs and Data were collected from mounted parts

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Mechanical Drawing



CHIP ATTRIBUTES

| | |
|----------------------------------|---|
| APERTURE WIDTH (μm) | Single Mode (4, 5) ± 1 Multi Mode (50, 95, 180, 350) ± 3 |
| CHIP WIDTH (μm) | 300, 500 ± 10 |
| THICKNESS (μm) | 160 ± 10 |
| CAVITY LENGTH (μm) | Varies ± 10 |

P METALIZATION

| MATERIAL | THICKNESS (nm) | TOLERANCE (nm) |
|----------|----------------|----------------|
| Ti | 50 | ± 10 |
| Pt | 125 | ± 25 |
| Au | 250 | ± 50 |

N METALIZATION

| MATERIAL | THICKNESS (nm) | TOLERANCE (nm) |
|----------|----------------|----------------|
| Ti | 30 | ± 10 |
| Pt | 125 | ± 25 |
| Au | 400 | ± 40 |

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