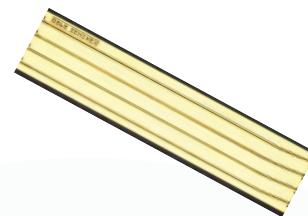


## High Power SOA 4-Emitter Chip



### Part Number: CHPm-178

High Power 4 Emitters Chip  
Single-Mode SOA  
CW Wavelength at 1310nm covering O band



### Features

- High Output Power
- High Dynamic Range
- High Efficiency
- 4 Emitters Mini Array
- Cost Effective

### Application

- FMCW LiDAR
- Datacom
- Data Centers
- Telecom OTDR
- Telecom Optical Comm



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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1 | Page

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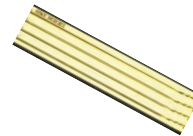
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## High Power SOA 4-Emitter Chip



### Specification

CHPm-178



| Optical                           | Symbol               | Typ.      | Units    |
|-----------------------------------|----------------------|-----------|----------|
| Center Wavelength                 | $\lambda_c$          | 1310      | nm       |
| ASE Output Power @1A* per channel | P <sub>out</sub>     | 0.2       | Watts    |
| Number of Emitters                |                      | 4         |          |
| Emitter Width                     | W                    | 4         | μm       |
| Spectral Width FWHM               | $\Delta\lambda$      | 85        | nm       |
| Gain @ Pin=10μW                   | G                    | 32        | dB       |
| Beam Exit Angle                   | $\theta_{EXT}$       | 19.5      | degree   |
| Noise Figure                      | NF                   | 7         | dB       |
| Polarization Extinction Ratio     | PER                  | 18        | dB       |
| Fast Axis Div.                    | $\theta_{\perp}$     | 30        | deg FWHM |
| Slow Axis Div.                    | $\theta_{\parallel}$ | 16        | deg FWHM |
| Front Facet Reflectivity          |                      | <0.1%     |          |
| Rear Facet Reflectivity           |                      | <0.1%     |          |
| Waveguide                         |                      | Curved    |          |
| Waveguide Pitch                   |                      | 127       | μm       |
| Electrical                        | Symbol               |           | Units    |
| Operating Current per channel     | I <sub>op</sub>      | 1         | A        |
| Operating Voltage                 | V <sub>op</sub>      | 2         | V        |
| Mechanical                        |                      |           | Units    |
| Chip Length                       |                      | 2500      | μm       |
| Chip Width                        |                      | 625       | μm       |
| Operating Temp.**                 |                      | -20 to 77 | °C       |
| Storage Temp.                     |                      | -40 to 85 | °C       |

\*\*Specified operating conditions are based on 20°C heat sink temperature. High temperature operation will reduce performance and MTTF.  
 \*\*Specified values are based on the P-side down configuration and rated at a constant heat sink temperature of 20°C.  
 Unless otherwise indicated all values are nominal.

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## High Power SOA 4-Emitter Chip



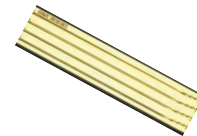
### Mechanical Drawing

LASER RIDGE, PLANAR  
WITH TOP SURFACE



CAVITY  
LENGTH

0.0 P-SIDE FULLY METALIZED SURFACE  
160.0 N-SIDE FULLY METALIZED SURFACE



| CHIP ATTRIBUTES |                              |
|-----------------|------------------------------|
| WAVELENGTH      | 1310nm $\pm$ 20nm            |
| APERTURE WIDTH  | 4 $\mu$ m $\pm$ 1 $\mu$ m    |
| EMITTER QTY     | 4                            |
| EMITTER PITCH   | 122 $\mu$ m $\pm$ 1 $\mu$ m  |
| THICKNESS       | 160 $\mu$ m $\pm$ 10 $\mu$ m |
| CAVITY LENGTH   | 2.5mm $\pm$ 10 $\mu$ m       |

| P-METAL  |                |                |
|----------|----------------|----------------|
| MATERIAL | THICKNESS (nm) | TOLERANCE (nm) |
| Ti       | 50             | $\pm$ 10       |
| Pt       | 125            | $\pm$ 25       |
| Au       | 250            | $\pm$ 50       |

| N-METAL  |                |                |
|----------|----------------|----------------|
| MATERIAL | THICKNESS (nm) | TOLERANCE (nm) |
| Ti       | 30             | $\pm$ 10       |
| Pt       | 125            | $\pm$ 25       |
| Au       | 400            | $\pm$ 40       |

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