SemiNex CORPORATION

# SOA/RSOA CHIP & ARRAY

SemiNex' Semiconductor Optical Amplifier (SOA) and Reflective SOA (RSOA) arrays leverage proprietary epitaxy and waveguide designs to deliver high gain and high saturation output power for next-generation optical networks. This platform supports multi-channel and multi-wavelength architectures that enable higher bandwidth density and I/O throughput for co-packaged optics (CPO) in scale across data centers supporting AI and high-performance computing. Custom Si PIC integration is available.

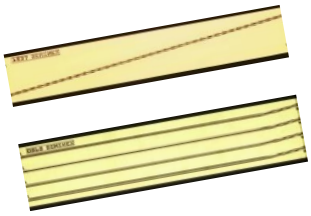


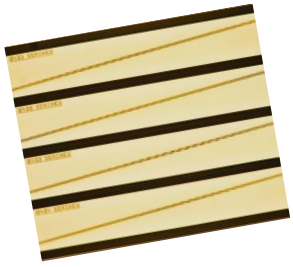
## Key Benefits

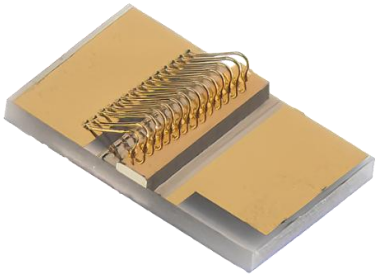
- High-gain, high-output power
- Single emitter & array
- Tilted straight or curved waveguides
- Custom SOA & RSOA available
- Si PIC integration
- O, C, and L bands available

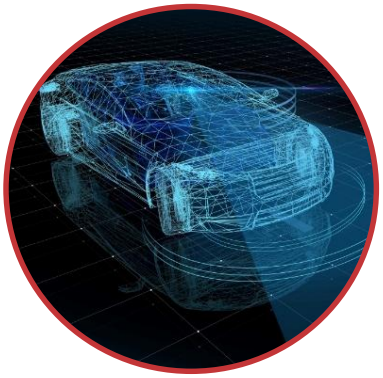
## Applications

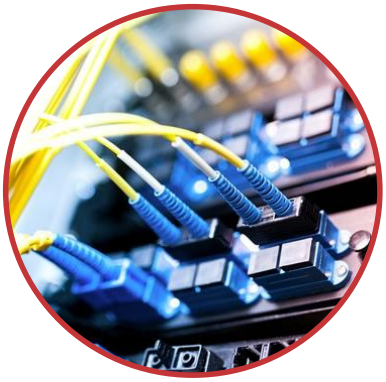
- Optical Networks
- Data Centers
- AI Computing
- FMCW LiDAR











APTechnologies
www.aptechnologies.co.uk
AP Technologies Limited | 21A Charles Street | Bath | BA1 1HX
Telephone: +44 (0) 1225 780400 | Email: info@aptechnologies.co.uk

SemiNex Corporation • 153 Andover Street, Suite 201, Danvers, MA 01923 • 978-326-7700 • sales@seminex.com

# 1310nm, 1550nm, and 1595nm High Power SOA

## SOA Chip, COC & Array

| Optical | Symbol | CHPm-177 | BARm-183 | BARm-184 | CHP-290/COC-290<br>CHP-290O/COC-290O | CHP-287/COC-287<br>CHP-287C/COC-287C | CHP-315L<br>COC-315L | Units |
|---|---|---|---|---|---|---|---|---|
| Center Wavelength | $\lambda_c$ | 1550 | 1550 | 1310 | 1280/1310 | 1520/1550 | 1595 | nm |
| Number of Emitters | | 4 | 4 | 4 | 1 | 1 | 1 | |
| Aperture Width per emitter | W | 4 | 4 | 4 | 4 | 4 | 4 | µm |
| Gain Bandwidth 3dB | $\Delta\lambda$ | 80 | 80 | 80 | 80 | 80 | 80 | nm |
| Gain @ Pin=10µW | G | 30 | 30 | 30 | 32 | 32 | 32 | dB |
| Beam Exit Angle | $\Theta_{EXT}$ | 19.5 | 19.5 | 19.5 | 19.5 | 19.5 | 19.5 | degree |
| Noise Figure | NF | 7 | 7 | 6 | 6 | 7 | 7 | dB |
| Polarization Extinction Ratio | PER | >20 | >20 | >20 | >20 | >20 | >20 | dB |
| Fast Axis Div. | $\Theta_{\perp}$ | 30 | 30 | 30 | 30 | 30 | 30 | deg FWHM |
| Slow Axis Div. | $\Theta_{\parallel}$ | 20 | 20 | 20 | 16 | 20 | 20 | deg FWHM |
| Front/Rear Facet Reflectivity | | <0.1% | <0.1% | <0.1% | <0.1% | <0.1% | <0.1% | |
| Waveguide | | Curved | Tilted Straight | Tilted Straight | Tilted Straight | Tilted Straight | Tilted Straight | |
| Waveguide Pitch | | 127 | 500 | 500 | | | | µm |
| **Electrical** | **Symbol** | | | | | | | **Units** |
| Operating Current per channel | $I_{op}$ | 1 | 1 | 1 | 1 | 1 | 1 | A |
| Operating Voltage | $V_{op}$ | 2 | 2 | 2 | 2 | 2 | 2 | V |
| **Mechanical** | | | | | | | | **Units** |
| Chip Length | | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | µm |
| Chip Width | | 625 | 2000 | 2000 | 500 | 500 | 500 | µm |
| Operating Temp.** | | -20 to 77 | -20 to 75 | -20 to 75 | -20 to 75 | -20 to 75 | -20 to 75 | °C |
| Storage Temp. | | -40 to 85 | -40 to 85 | -40 to 85 | -40 to 85 | -40 to 85 | -40 to 85 | °C |

*Specified values are rated with a seed laser power of 10dBm at a constant heat sink temperature of 20°C.

## RSOA Chip & COC

| Optical | Symbol | CHP-289<br>COC-289 | CHP-286<br>COC-286 | CHP-312<br>COC-312 | CHP-310<br>COC-310 | Units |
|---|---|---|---|---|---|---|
| Center Wavelength | $\lambda_c$ | 1310 | 1550 | 1310 | 1550 | nm |
| Aperture Width | AW | 4 | 4 | 4 | 4 | µm |
| Number of Emitters | | 1 | 1 | 1 | 1 | 127µm pitch |
| 3dB Bandwidth | BW | 80 | 80 | 80 | 80 | nm |
| Beam Exit Angle | $\theta_{EXT}$ | 19.5 | 19.5 | 19.5 | 19.5 | degree |
| Polarization Extinction Ratio | PER | 20 | 20 | 20 | 20 | dB |
| Fast Axis Div. | $\Theta_{\perp}$ | 30 | 30 | 30 | 30 | deg FWHM |
| Slow Axis Div. | $\Theta_{\parallel}$ | 16 | 20 | 16 | 20 | deg FWHM |
| Front Facet Reflectivity | | <0.1% | <0.1% | <0.1% | <0.1% | |
| Rear Facet Reflectivity | | 98% | 98% | 98% | 98% | |
| Waveguide | | Curved | Curved | Curved | Curved | |
| **Electrical** | **Symbol** | | | | | **Units** |
| Operating Current per channel | $I_{op}$ | 500 | 500 | 500 | 500 | mA |
| Operating Voltage | $V_{op}$ | 2 | 2 | 2 | 2 | V |
| **Mechanical** | | | | | | **Units** |
| Chip Length | | 2500 | 2500 | 1000 | 1000 | µm |
| Chip Width | | 500 | 500 | 500 | 500 | µm |
| Operating Temp.** | | -20 to 75 | -20 to 75 | -20 to 75 | -20 to 75 | °C |
| Storage Temp. | | -40 to 85 | -40 to 85 | -40 to 85 | -40 to 85 | °C |

AP Technologies Limited | 21A Charles Street | Bath | BA1 1HX
Telephone: +44 (0) 1225 780400 | Email: info@aptechnologies.co.uk
www.aptechnologies.co.uk

SemiNex Corporation • 153 Andover Street, Suite 201, Danvers, MA 01923 • 978-326-7700 • sales@seminex.com