

SOA/RSOA CHIP & ARRAY

SemiNex' Semiconductor Optical Amplifier (SOA) and Reflective SOA (RSOA) Arrays use a proprietary epitaxy and waveguide design achieve high-gain and high-saturation output power, making them ideal for data center and optical network applications. This versatile platform supports multi-channel and multi-wavelength configurations, providing higher data rates and bandwidth, which is perfect for AI computing applications. Custom solutions for integrating with Si PIC are available upon request.

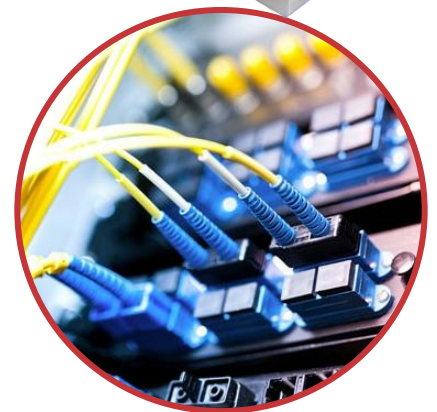
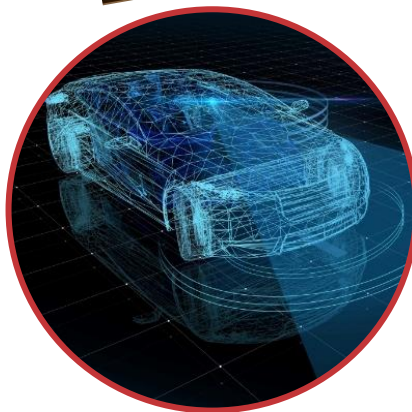
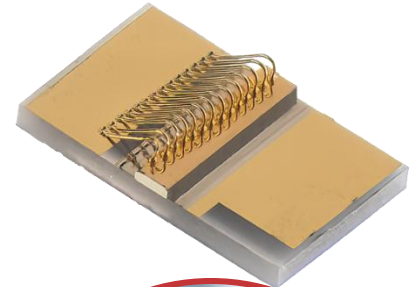
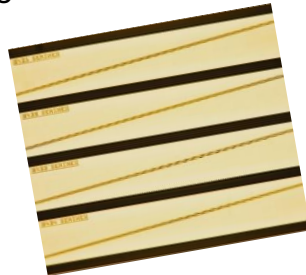
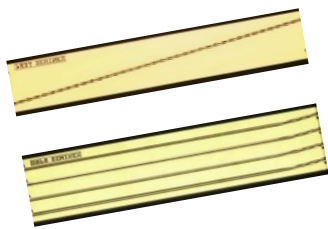


Key Benefits

- 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



SOA Chip, COC & Array

Optical	Symbol	CHPm-177	BARm-183	BARm-184	CHP-290/COC-290 CHP-2900/COC-2900	CHP-287/COC-287 CHP-287C/COC-287C	CHP-315L COC-315L	Units
Center Wavelength	λ_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=10 μW	G	30	30	30	32	32	32	dB
Beam Exit Angle	θ_{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	>18	>18	>18	>18	>18	>18	dB
Fast Axis Div.	θ_{\perp}	30	30	30	30	30	30	deg FWHM
Slow Axis Div.	θ_{\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	$^{\circ}\text{C}$
Storage Temp.		-40 to 85	-40 to 85	-40 to 85	-40 to 85	-40 to 85	-40 to 85	$^{\circ}\text{C}$

RSOA Chip, COC & Array

Optical	Symbol	CHP-289 COC-289	CHP-286 COC-286	CHPm-179	CHPm-181	Units
Center Wavelength	λ_c	1310	1550	1550	1310	nm
Aperture Width	AW	4	4	4	4	μm
Number of Emitters		1	1	4	4	127 μm pitch
3dB Bandwidth	BW	80	80	80	80	nm
Beam Exit Angle	θ_{EXT}	19.5	19.5	19.5	19.5	degree
Polarization Extinction Ratio	PER	18	18	18	18	dB
Fast Axis Div.	θ_{\perp}	30	30	30	28	deg FWHM
Slow Axis Div.	θ_{\parallel}	16	20	20	16	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	
Waveguide Pitch				127	127	μm
Electrical	Symbol					Units
Operating Current per channel	I_{op}	1	1	1	1	A
Operating Voltage	V_{op}	2	2	2	2	V
Mechanical				Range	Range	Units
Chip Length		2500	2500	2500	2500	μm
Chip Width		500	500	625	625	μm
Operating Temp.**		-20 to 75	-20 to 75	-20 to 75	-20 to 75	$^{\circ}\text{C}$
Storage Temp.		-40 to 85	-40 to 85	-40 to 85	-40 to 85	$^{\circ}\text{C}$

*Specified values are rated with a seed laser power of 10dBm at a constant heat sink temperature of 20 $^{\circ}\text{C}$.

**High temperature operation will reduce performance and MTTF.

Unless otherwise indicated all values are nominal.

