

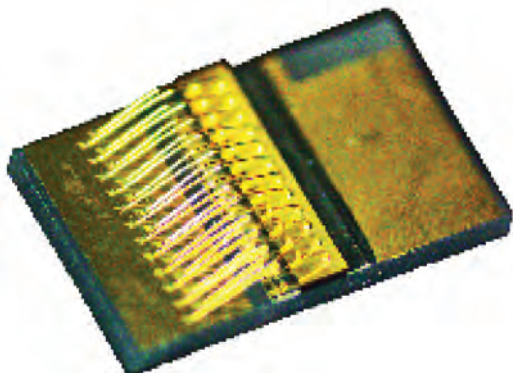


SEMICONDUCTOR OPTICAL AMPLIFIERS

SemiNex's Semiconductor Optical Amplifier (SOA) platform provides a cost-effective and high-performance solution to amplifying single mode lasers for high power applications. The unique epitaxial and waveguide design allows for high gain and high saturation output power for Automotive FMCW LiDAR and Optical Communications. The solutions include both wavelength of 1310nm and 1550nm in a single emitter or multiple-channel array. Custom solutions for integrating with Si PIC are available upon request.

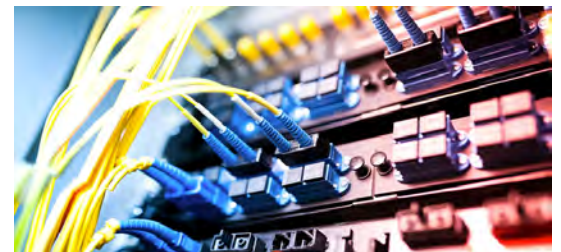
Key Benefits

- High Gain, High Output Power
- Single Emitter & Array
- Standard SOA & Gain Chips
- Tilted Straight or Curved Waveguides
- Custom SOA Available
- Si PIC integration



Applications

- Automotive FMCW LiDAR
- Telecom
- Tunable Laser
- Spectroscopy



Semiconductor Optical Amplifiers

SOA Chips

Optical	Symbol	CHP-288	CHP-290	CHP-285	CHP-287	Units
Wavelength	λ_c	1310	1310	1550	1550	nm
Output Power*	P_{out}	475	475	390	390	mW (+/-10%)
Aperture Width	AW	4	4	4	4	μm
Aperture Height	AH	1	1	1	1	μm
Spectral Width	$\delta\lambda$	100	100	100	100	nm @ 3dB
Gain @ $P_{in}=10\mu\text{W}$	G	25	25	25	25	dB
Beam Exit Angle	Θ_{EXT}	19.5	19.5	19.5	19.5	degree
Noise Figure	NF	6	6	5	5	dB
Fast Axis Div.	Θ_{perp}	28	28	30	30	deg FWHM
Slow Axis Div.	$\Theta_{parallel}$	16	16	20	20	deg FWHM
Front Facet Reflectivity		<0.1%	<0.1%	<0.1%	<0.1%	
Rear Facet Reflectivity		<0.1%	<0.1%	<0.1%	<0.1%	
Waveguide		Curved	Tilted Straight	Curved	Tilted Straight	
Electrical						
Operating Voltage	V_{op}	2	2	2	2	V
Operating Current	I_{op}	1.2	1.2	1.4	1.4	A
Mechanical						
Operating Temp.**		-40 to 100	-40 to 100	-40 to 100	-40 to 100	$^{\circ}\text{C}$
Storage Temp.		-40 to 100	-40 to 100	-40 to 100	-40 to 100	$^{\circ}\text{C}$

*Output Power for 1310nm Chips CHP-288 and CHP-290 has an SOA current @ 1.2A and Pin @ 10mW

*Output Power for 1550nm Chips CHP-285 and CHP-287 has an SOA current @ 1.4A and Pin @ 36mW

**Specified operating conditions are based on 20°C heat sink temperature. High temperature operation will reduce performance and MTTF.

Unless otherwise indicated all values are nominal.

RSOA Chips

Optical	Symbol	CHP-289	CHP-286	Units
Wavelength	λ_c	1310	1550	nm
Aperture Width	AW	4	4	μm
Aperture Height	AH	1	1	μm
Spectral Bandwidth	$\delta\lambda$	100	100	nm @ 3dB
Beam Exit Angle	Θ_{EXT}	19.5	19.5	degree
Noise Figure	NF	6	5	dB
Fast Axis Div.	Θ_{perp}	28	30	deg FWHM
Slow Axis Div.	$\Theta_{parallel}$	16	20	deg FWHM
Front Facet Reflectivity		<0.1%	<0.1%	
Rear Facet Reflectivity		98%	98%	
Waveguide		Curved	Curved	
Electrical				
Operating Voltage	V_{op}	2	2	V
Operating Current	I_{op}	1.2	1.4	A
Mechanical				
Operating Temp.**		-40 to 100	-40 to 100	$^{\circ}\text{C}$
Storage Temp.		-40 to 100	-40 to 100	$^{\circ}\text{C}$

**Specified operating conditions are based on 20°C heat sink temperature. High temperature operation will reduce performance and MTTF.

Unless otherwise indicated all values are nominal.