

# ULTRA HIGH POWER SOA

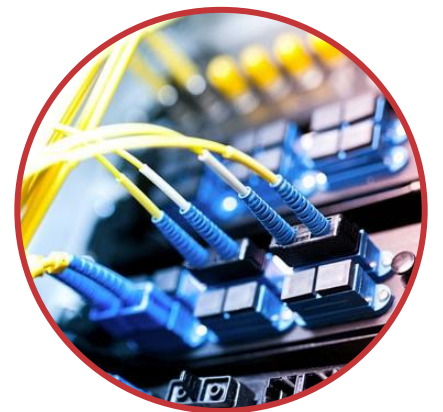
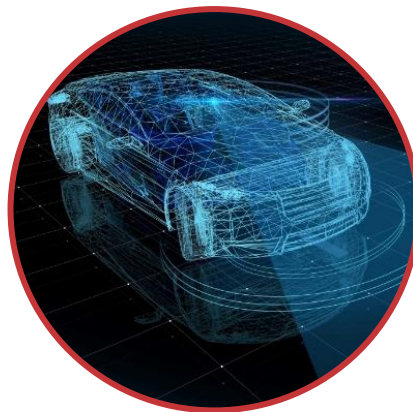
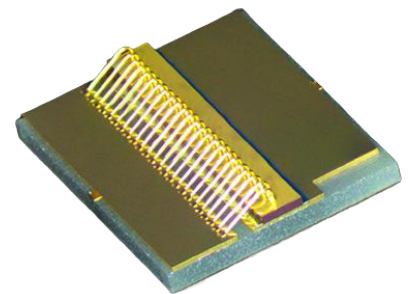
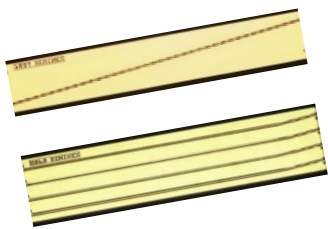
SemiNex' Ultra High Power Semiconductor Optical Amplifier (SOA) can achieve 30dBm (1 Watt) saturation output power with over 20% Power Conversion Efficiency (PCE) at 50°C. This high power platform is built on SemiNex' advanced and proprietary epi and optical waveguide structures which allow the maximum output power exceeds 30dBm. This technology paves ways for high speed and high data throughput co-packaged optics (CPO) in next-generation Data Center infrastructure and the adoption of optical interconnects for AI, high-performance computing, and FMCW LiDAR applications. Customizable Si PIC integration available.

## Key Benefits

- Ultra-High Output Power >30dBm
- Broad Gain Bandwidth
- High Efficiency
- Standard TA Chip on Carrier & Arrays
- Si PIC integration
- O band available

## Applications

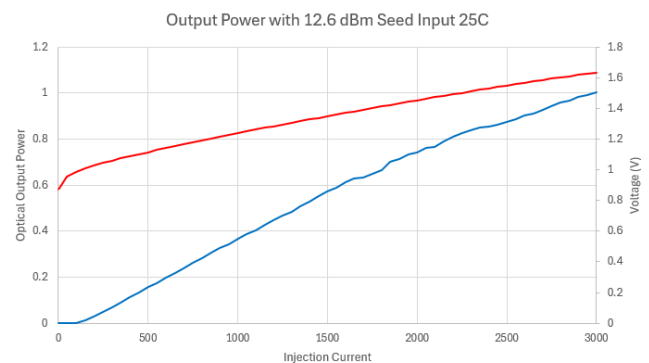
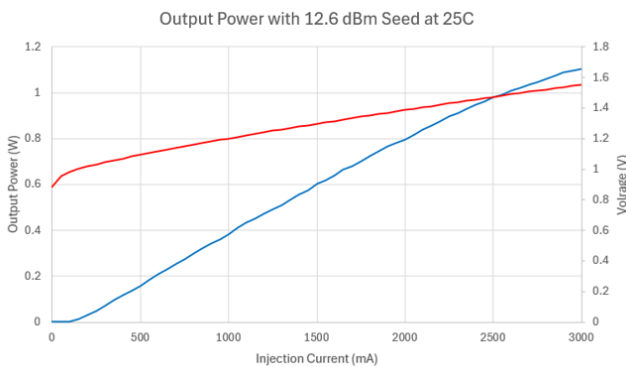
- Optical Networks
- Data Centers
- AI Computing
- FMCW LiDAR



## Ultra High Power COC

Optical	Symbol	Typ.	Typ.	Units
		COC-ENG-703E-10	COC-ENG-703F-10	
Center Wavelength	$\lambda_c$	1310	1310	nm
Output Power @ I <sub>op</sub> *	P <sub>out</sub>	0.8	1	Watts
Input Aperture Width	AW	4	4	$\mu\text{m}$
<b>Output Aperture Width</b>	<b>AW</b>	<b>8</b>	<b>12</b>	<b><math>\mu\text{m}</math></b>
3dB Bandwidth	BW	80	80	nm
Gain @ Pin = 10 $\mu\text{W}$	G	25	25	dB
Gain Bandwidth	BW	80	80	nm
Beam Exit Angle	$\theta_{\text{EXT}}$	19.5	19.5	degree
Noise Figure	NF	7	7	dB
Polarization Extinction Ratio	PER	18	18	dB
Fast Axis Div. (FWHM)	$\theta_{\perp}$	38	36	deg FWHM
Slow Axis Div. (FWHM)	$\theta_{\parallel}$	11	9	deg FWHM
Input Facet Reflectivity		<0.1%	<0.1%	
Output Face Reflectivity		<0.1%	<0.1%	
Waveguide		Tilted Straight	Tilted Straight	
Electrical	Symbol			Units
Operating Current	I <sub>op</sub>	2.5	3	A
Operating Voltage	V <sub>op</sub>	1.6	1.6	V
Mechanical		Range	Range	Units
Chip Width		600	700	$\mu\text{m}$
<b>Chip Length</b>		<b>4</b>	<b>5</b>	<b>mm</b>
Operating Temp.**		-20 to 75	-20 to 75	$^{\circ}\text{C}$
Storage Temp.		-40 to 85	-40 to 85	$^{\circ}\text{C}$

Test Data for COC-ENG-703E-10



\* Optical output power depends on the seed laser power from 10 to 13 dBm, coupling efficiency, and thermal management.

\*Specified values are rated at a constant heat sink temperature of 20°C.

\*\*High temperature operation will reduce performance and MTTF.

Unless otherwise indicated all values are nominal.

