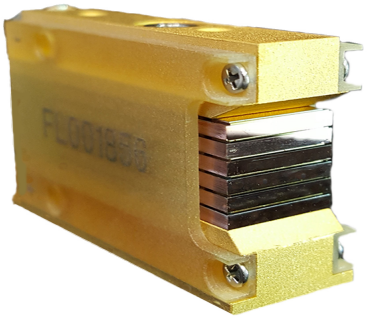
5 Bar Stack 1.5 mm CL

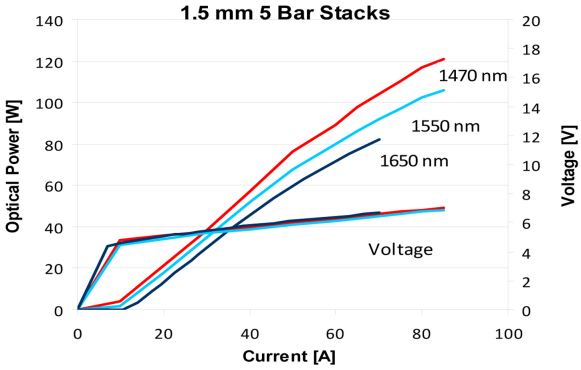
High Power Multi-Mode Laser Bar Stacks
Up to 500 Watts of CW Power
1470, 1550, 1650 nm wavelengths standard
Custom Wavelengths Available

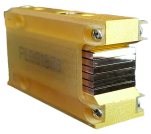
Applications
- Material Processing
- Professional Medical
- Military / Aerospace
- Illumination

Features
- Cost Effective
- High Output Power
- High Dynamic Range
- High Efficiency
- Standard Low Cost Package



SemiNex delivers the highest available power at infrared wavelengths between 13xx and 17xx nm. When necessary we will further optimize the design of our InP 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.





Laser Stacks

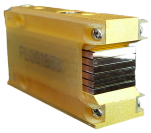
	Symbol	STK-101	STK-102	STK-103	STK-104	STK-105	STK-106	STK-107	STK-108	STK-109	STK-110	Units
Optical												
Wavelength	λ_c	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470	nm (±20)
Output Power (CW)*	P_c	98.0	173.0	259.0	345.0	403.0	124.0	219.0	328.0	437.0	510.0	watts
Chip Cavity Length	CL	1500	1500	1500	1500	1500	2500	2500	2500	2500	2500	µm
Number of Bars		5	10	15	20	25	5	10	15	20	25	
Emitter Width	W	95	95	95	95	95	95	95	95	95	95	µm
Emitter Height	H	1	1	1	1	1	1	1	1	1	1	µm
Number of Emitters		95	190	285	380	475	95	190	285	380	475	
Spectral Width	δλ	20	20	20	20	20	20	20	20	20	20	nm 3dB
Slope Efficiency	η_c	1.64	2.89	4.34	5.78	6.74	1.23	2.17	3.25	4.34	5.06	W/A
Fast Axis Div.	Θ_perp	28	28	28	28	28	28	28	28	28	28	deg FWHM
Slow Axis Div.	Θ_parallel	9	9	9	9	9	9	9	9	9	9	deg FWHM
Electrical												
Power Conversion Eff.	η	0.23	0.21	0.21	0.21	0.19	0.23	0.2	0.2	0.2	0.19	%
Threshold Current	I_{th}	10	10	10	10	10	12	12	12	12	12	A
Operating Current	I_{op}	65	65	65	65	65	100	100	100	100	100	A
Operating Voltage	V_{op}	6.45	12.9	19.35	25.8	32.25	5.5	11	16.5	22	27.5	V
Series Resistance	R_s	0.04	0.06	0.09	0.12	0.15	0.04	0.06	0.09	0.12	0.15	ohm
Mechanical												
Operating Temp.		10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	°C
Storage Temp.		0 to 55	0 to 55	0 to 55	0 to 55	0 to 55	0 to 55	0 to 55	0 to 55	0 to 55	0 to 55	°C
Coolant		DI Water	DI Water	DI Water	DI Water	DI Water	DI Water	DI Water	DI Water	DI Water	DI Water	
Flow Rate/Bar	L/Min	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	
Max Inlet Pressure	kPa	380	380	380	380	380	380	380	380	380	380	
Resistivity	MΩ-cm	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	°C

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

	Symbol	STK-111	STK-112	STK-113	STK-114	STK-115	STK-116	STK-117	STK-118	STK-119	STK-120	Units
Optical												
Wavelength	λ_c	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	nm (±20)
Output Power (CW)*	P_c	86.0	152.0	228.0	304.0	355.0	107.0	188.0	282.0	376.0	439.0	watts
Chip Cavity Length	CL	1500	1500	1500	1500	1500	2500	2500	2500	2500	2500	µm
Number of Bars		5	10	15	20	25	5	10	15	20	25	
Emitter Width	W	95	95	95	95	95	95	95	95	95	95	µm
Emitter Height	H	1	1	1	1	1	1	1	1	1	1	µm
Number of Emitters		95	190	285	380	475	95	190	285	380	475	
Spectral Width	δλ	20	20	20	20	20	20	20	20	20	20	nm 3dB
Slope Efficiency	η_c	1.44	2.54	3.81	5.08	5.93	1.06	1.87	2.80	3.73	4.35	W/A
Fast Axis Div.	Θ_perp	28	28	28	28	28	28	28	28	28	28	deg FWHM
Slow Axis Div.	Θ_parallel	9	9	9	9	9	9	9	9	9	9	deg FWHM
Electrical												
Power Conversion Eff.	η	0.21	0.19	0.19	0.19	0.17	0.19	0.17	0.17	0.17	0.16	%
Threshold Current	I_{th}	10	10	10	10	10	12	12	12	12	12	A
Operating Current	I_{op}	65	65	65	65	65	100	100	100	100	100	A
Operating Voltage	V_{op}	6.3	12.6	18.9	25.2	31.5	5.5	11	16.5	22	27.5	V
Series Resistance	R_s	0.04	0.06	0.09	0.12	0.15	0.02	0.04	0.06	0.08	0.1	ohm
Mechanical												
Operating Temp.		10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	°C
Storage Temp.		0 to 55	0 to 55	0 to 55	0 to 55	0 to 55	0 to 55	0 to 55	0 to 55	0 to 55	0 to 55	°C
Coolant		DI Water	DI Water	DI Water	DI Water	DI Water	DI Water	DI Water	DI Water	DI Water	DI Water	
Flow Rate/Bar	L/Min	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	
Max Inlet Pressure	kPa	380	380	380	380	380	380	380	380	380	380	
Resistivity	MΩ-cm	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	°C

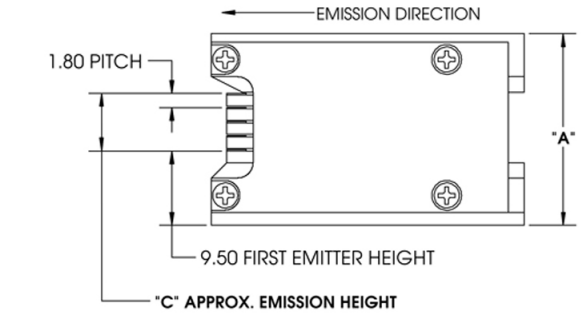
Specified values are rated at a constant heat sink temperature of 20°C.

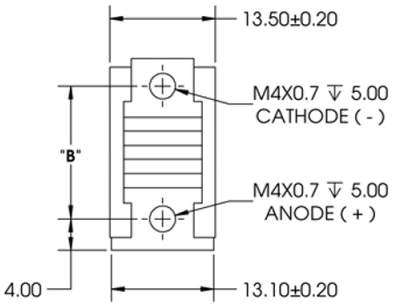
SemiNex LASER DIODES

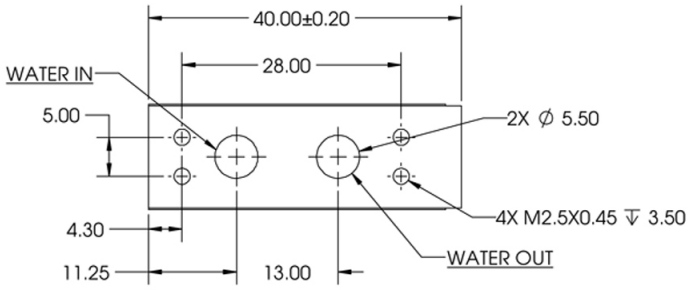


	Symbol	STK-121	STK-122	STK-123	STK-124	STK-125	Units
Optical							
Wavelength	λ_c	1650	1650	1650	1650	1650	nm (±20)
Output Power (CW)*	P-	75.0	133.0	199.0	266.0	310.0	watts
Chip Cavity Length	CL	1500	1500	1500	1500	1500	µm
Number of Bars		5	10	15	20	25	
Emitter Width	W	95	95	95	95	95	µm
Emitter Height	H	1	1	1	1	1	µm
Number of Emitters		95	190	285	380	475	
Spectral Width	δλ	20	20	20	20	20	nm 3dB
Slope Efficiency	η_-	1.30	2.30	3.45	4.60	5.37	W/A
Fast Axis Div.	Θ_perp	28	28	28	28	28	deg FWHM
Slow Axis Div.	Θ_parallel	9	9	9	9	9	deg FWHM
Electrical							
Power Conversion Eff.	η	0.18	0.16	0.16	0.16	0.15	%
Threshold Current	I_{th}	10	10	10	10	10	A
Operating Current	I_{op}	65	65	65	65	65	A
Operating Voltage	V_{op}	6.5	13	19.4	25.9	32.4	V
Series Resistance	R_s	0.04	0.06	0.09	0.12	0.14	ohm
Mechanical							
Operating Temp.		10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	°C
Storage Temp.		0 to 55	0 to 55	0 to 55	0 to 55	0 to 55	°C
Coolant		DI Water	DI Water	DI Water	DI Water	DI Water	
Flow Rate/Bar	L/Min	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	
Max Inlet Pressure	kPa	380	380	380	380	380	
Resistivity	MΩ-cm	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	0.3-0.4	°C

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







NUMBER OF BARS	DIMENSIONS		
	"A" ± 0.30	"B" ± 0.05	"C"
5	24.5	17.0	7.4
10	33.5	26.0	16.4
15	42.5	35.0	25.4
20	51.5	44.0	34.4
25	60.5	53.0	43.4

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