Laser Stacks

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

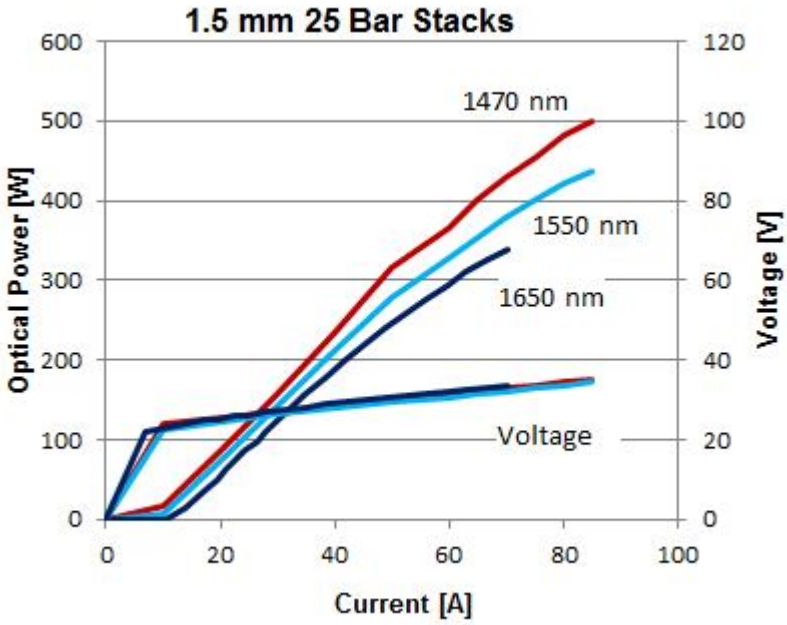
Features

- High output power
- High dynamic power range
- High efficiency
- 5, 10, 15, 20 and 25 bar stacks

Applications

- Medical laser equipment
- LIDAR
- Free Space Optical Communication
- DPSS pump lasers
- Military / Aerospace

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



SemiNex Corporation ● 100 Corporate Place ● Peabody, MA 01960 ● 978-326-7700 ● Email: info@seminex.com ● www.seminex.com

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)
Optical Power	P_o	98	173	259	345	403	124	219	328	437	510	W
Number of Bars		5	10	15	20	25	5	10	15	20	25	
Cavity Length (typ.)		1500	1500	1500	1500	1500	2500	2500	2500	2500	2500	µm
Emitter Width (typ.)	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_o	1.64	2.89	4.34	5.78	6.74	1.23	2.17	3.25	4.34	5.06	W/A
Fast Axis Divg.	θ_perp	25	25	25	25	25	25	25	25	25	25	deg FWHM
Slow Axis Div.	θ_parallel	8	8	8	8	8	8	8	8	8	8	deg FWHM
Electrical												
Power conversion Eff.	η	0.23	0.21	0.21	0.21	0.19	0.23	0.20	0.20	0.20	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	mOhm
Mechanical												
Operating Temp.	C	10 to 30										°C
Storage Temp.	C	0 to 55										
Coolant	-	Deionized Water										
Flow Rate/Bar	L/min	0.3 - 0.4										
Max Inlet Pressure	kPa	380										
Resitivity	MΩ-cm	0.2-0.5										°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)
Optical Power	P_o	86	152	228	304	355	107	188	282	376	439	W
Number of Bars		5	10	15	20	25	5	10	15	20	25	
Cavity Length (typ.)		1500	1500	1500	1500	1500	2500	2500	2500	2500	2500	µm
Emitter Width (typ.)	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_o	1.44	2.54	3.81	5.08	5.93	1.06	1.87	2.80	3.73	4.35	W/A
Fast Axis Divg.	θ_perp	25	25	25	25	25	25	25	25	25	25	deg FWHM
Slow Axis Div.	θ_parallel	8	8	8	8	8	8	8	8	8	8	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	mOhm
Mechanical												
Operating Temp.	C	10 to 30										°C
Storage Temp.	C	0 to 55										
Coolant	-	Deionized Water										
Flow Rate/Bar	L/min	0.3 - 0.4										
Max Inlet Pressure	kPa	380										
Resitivity	MΩ-cm	0.2-0.5										°C

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

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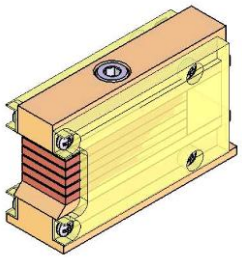
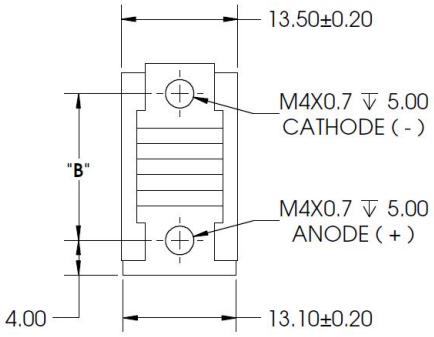
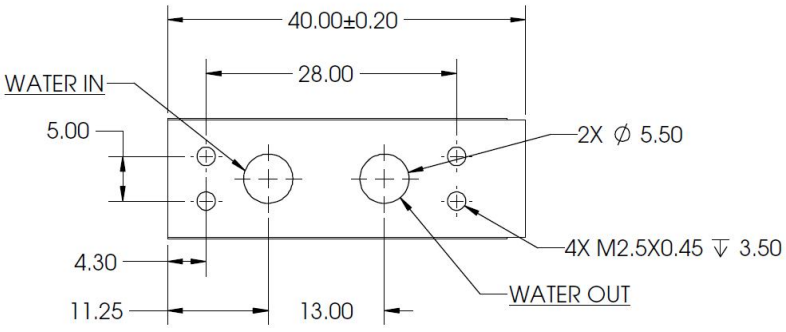


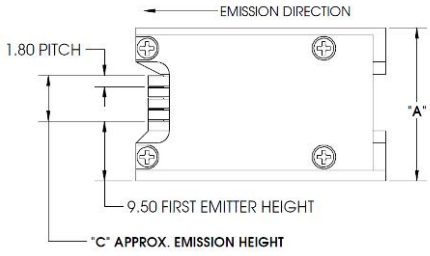
	Symbol	STK-121	STK-122	STK-123	STK-124	STK-125	Units
Optical							
Wavelength	λ_c	1650	1650	1650	1650	1650	nm (±20)
Optical Power	P_o	75	133	199	266	310	W
Number of Bars		5	10	15	20	25	
Cavity Length (typ.)		1500	1500	1500	1500	1500	µm
Emitter Width (typ.)	W	95	95	95	95	95	µm
Emitter Height	H	1	1	1	1	1	µm
Number of emitters		95	190	285	380	475	
Spectral Width	Δλ	20	20	20	20	20	nm 3dB
Slope Efficiency	η_o	1.30	2.30	3.45	4.60	5.37	W/A
Fast Axis Divg.	θ_perp	25	25	25	25	25	deg FWHM
Slow Axis Div.	θ_parallel	8	8	8	8	8	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	13.0	19.4	25.9	32.4	V
Series Resistance	R_s	0.04	0.06	0.09	0.12	0.14	mOhm
Mechanical							
Operating Temp.	C			10 to 30			°C
Storage Temp.	C			0 to 55			
Coolant	-			Deionized Water			
Flow Rate/Bar	L/min			0.3 - 0.4			
Max Inlet Pressure	kPa			380			
Resitivity	MΩ-cm			0.2-0.5			°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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