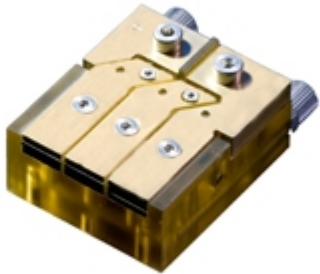


CASCADES™ HORIZONTAL STACKED ARRAYS



nLIGHT's Cascades™ horizontal array product series is based on the Cascades™ actively, water-cooled, low thermal resistance package, which provides end users with state-of-the-art power, brightness and reliability. Our 1-cm wide, MOCVD grown GaAs or InP arrays consist of multiple transverse mode emitters, which provide low beam divergence and narrow spectral bandwidth. Cascades™ horizontal stacked arrays are available in a wide range of wavelengths between 790 nm to 980 nm, and 1400 to 1600 nm.

The design of these devices allows multiple packages to be placed side by side. Standard packaging footprint allows these stacks to easily integrate into your product.

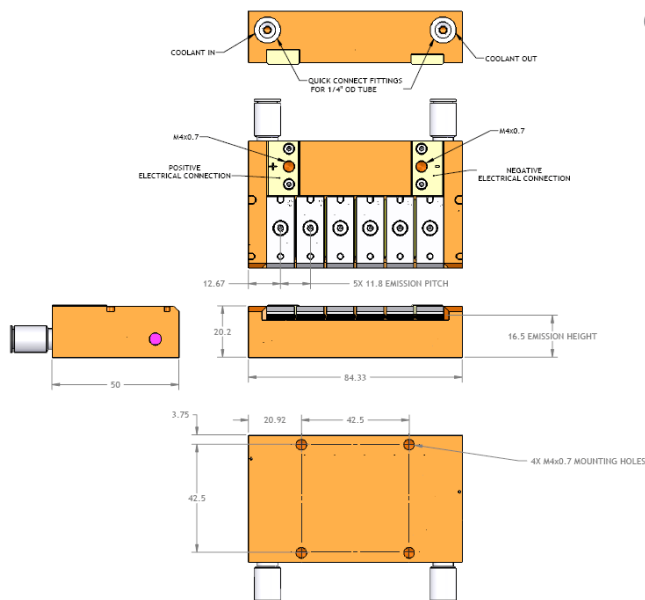
Applications

- Solid-state laser pumping
- Materials processing
- Medical therapeutics

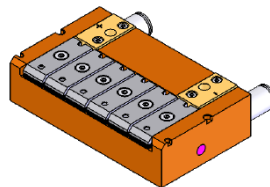
Features

- Highest power
- High reliability
- Low bar smile
- High polarization purity

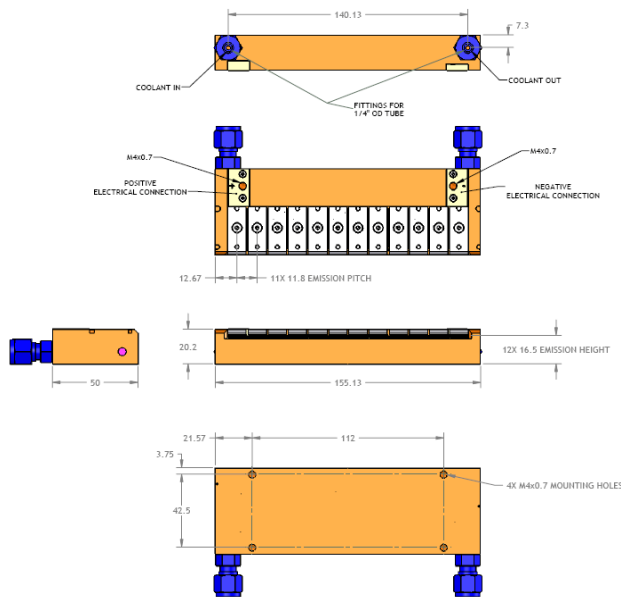
Package dimensions



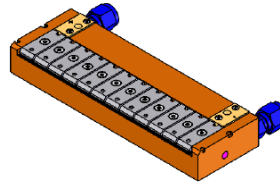
Cascades™ Horizontal Stacked Arrays, 6 bar



Package dimensions



Cascades™ Horizontal Stacked Arrays, 12 bar



Typical device specification

HSA-ww-xxxx-yyyy¹

Optical

		790 - 825	790 - 825	910 - 980	910 - 980	1400 - 1600
Center wavelength	nm	790 - 825	790 - 825	910 - 980	910 - 980	1400 - 1600
Center wavelength tolerance	nm	± 3	± 3	± 5	± 3	± 5
Number of bars ²	#	1 - 13	1 - 13	1 - 13	1 - 13	1 - 13
CW output power / bar	W	60	100	60	80	25
Bar length	cm	1	1	1	1	1
Number of emitters / bar	#	49	64	19	49	19
Emitter size	µm	100	120	100	100	100
Emitter spacing	µm	200	150	200	200	500
Spectral width (FWHM)	nm	< 3	< 3	< 4	< 4	< 10
Slope efficiency	W / A	> 1.1	> 1.05	> 0.9	> 0.9	> 0.4
Polarization	TM or TE	TM	TM	TE	TE	TE
Fast-axis divergence	Degrees	36°	36°	38°	38°	27°
Slow-axis divergence	Degrees	10°	10°	10°	10°	10°
Wavelength temperature coefficient ³	nm / °C	0.28	0.28	0.3	0.3	0.4

Electrical

Power conversion efficiency	%	55	48	50	52	30
Threshold current (I _{TH})	A	14	26	8	12	10
Operating current (I _{OP})	A	60	110	70	95	70
Operating voltage / bar (V _{OP})	V	1.8	1.85	1.6	1.6	1.2
Series resistance / bar (R _S)	Ω	0.005	0.005	0.005	0.005	0.005

Typical device specification

		HSA-ww-xxxx-yyyy ¹				
Mechanical						
Storage temperature range ⁴	°C	10 to 40	10 to 40	10 to 40	10 to 40	10 to 40
Thermal						
Thermal resistance ⁵	°C / W	0.35	0.35	0.35	0.35	0.35
Operating temperature	°C	20 to 35	20 to 35	20 to 35	20 to 35	20 to 35
Fluid flow rate	ml/min/plate	200 - 250	200 - 250	200 - 250	200 - 250	200 - 250
Max inlet pressure	psi	55	55	55	55	55
Inlet to outlet pressure drop	psi				35	35
Deionized water resistivity	MΩ - cm	0.25 - 0.5	0.25 - 0.5	0.25 - 0.5	0.25 - 0.5	0.25 - 0.5
Filter	µm	< 20	< 20	< 20	< 20	< 20

¹ HSA-ww-xxxx-yyyy: ww denotes the number of bars in the stack; xxxx denotes CW power; yyyy denotes the operating wavelength.

² Available up to 12 bars across.

³ The wavelength temperature coefficient is the wavelength shift per °C change at the diode junction.

⁴ A non-condensing environment is required for storage and operation below ambient dew point.

⁵ Thermal resistance is the diode junction temperature shift per incremental Watt of heat load.

CFR Regulation

These components do not comply with the federal regulation (Title 21 CFR, Chapter 1, Subchapter J) as administered by the Center for Device and radiological Health. Purchaser acknowledges that their products must comply with these regulations before they can be sold to an end-user.



Notice

nLIGHT continually improves its products to provide our customers with outstanding quality and reliability. nLIGHT may make changes to specifications and product descriptions at any time, without notice. In addition, nLIGHT offers a limited warranty to ensure customer satisfaction. For complete details, please contact your nLIGHT sales representative.