



The Cascade HSA series is designed primarily for Solid State Pumping to optimize fundamental mode extraction from end-pumped, disk and slab laser geometries.

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™ vertical stacked arrays are available in a wide range of wavelengths between 790 nm to 830 nm.

The design of these devices allows multiple packages to be horizontally stacked, with a pitch of 11.8 mm, up to 13 bars wide. Standard packaging footprint allows these stacks to easily integrate into your product.

## Features

- Patented nXLT™ diode protection for extended life
- High Power
- Industry-leading wall-plug efficiency >50%
- Low Smile Bars
- High Polarization Purity

## Applications

- Rod Pumping
- Disk Pumping
- Slab Pumping

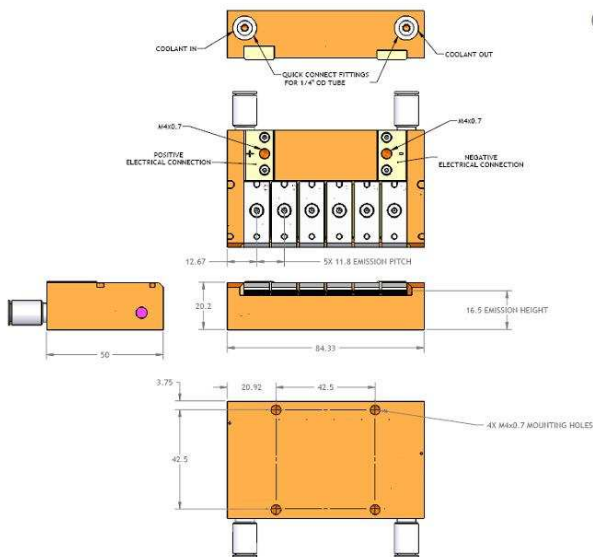
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## Proven Performance

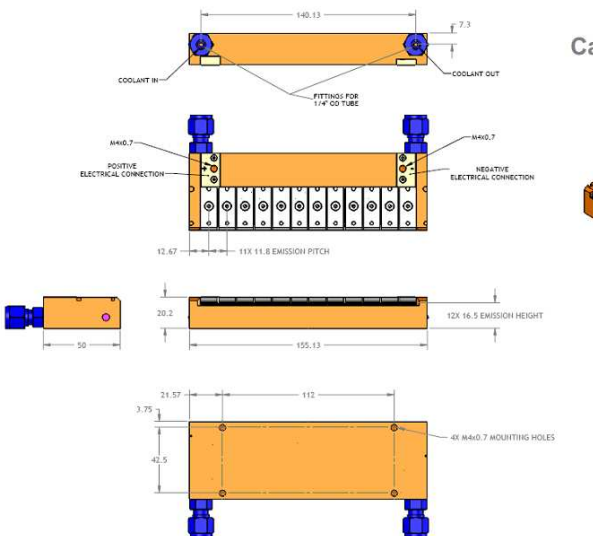
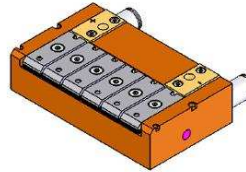
## Typical Device Performance

Package	HSA-ww-xxx-yyyy <sup>1</sup>		
<b>Optical</b>			
Wavelength	nm	790-830 nm	
Wavelength tolerance	nm	± 3	
CW output power/bar	W	60	80      100
Number of Bars <sup>2</sup>		1-13	
Fast Axis Divergence Un-lensed	°	35	
Slow Axis Divergence	°	10	
<b>Electrical</b>			
Power conversion efficiency (typical)	%	50	
Operating current (typical)	A	64	92      114
Operating voltage (typical)	V	2.1	2.0      2.1
<b>Mechanical</b>			
Storage temperature range <sup>3</sup>	°C	10 to 40	
Fluid Flow Rate	ml/min/plate	200-250	
Max Inlet Pressure	psi	55	
Deionized Water Resistivity	MΩ-cm	0.25-0.5	
Filter	μm	<20	
<b>Thermal</b>			
Operating temperature <sup>3</sup>	°C	+20 to +35	
<b>Notes</b>			
<p>1 HSA-ww-xxx-yyyy: ww denotes the number of bars in the stack; xxx denotes CW power; yyyy denote</p> <p>2 HSA can be configured from 2-13 bars. Maximum Power is calculated by multiplying bar count by power/bar desired. Minimum Power is 2 bar, 120W stack. Maximum Power is 13 bar, 1.3kW stack.</p> <p>3 A non-condensing environment is required for storage and operation below ambient dew point.</p>			

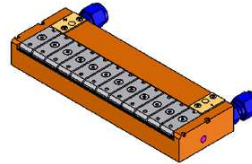
**Package Dimensions**



Cascades™ Horizontal Stacked Arrays, 6 bar



Cascades™ Horizontal Stacked Arrays, 12 bar



**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-use.



**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.

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