



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

nLIGHT's Cascades™ vertical 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 vertically stacked, with a pitch of 1.8 mm, up to 20 bars high. 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
- Fast Axis Lensing
- High Polarization Purity

## Applications

- Rod Pumping
- Disk Pumping
- Slab Pumping

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**Proven Performance**

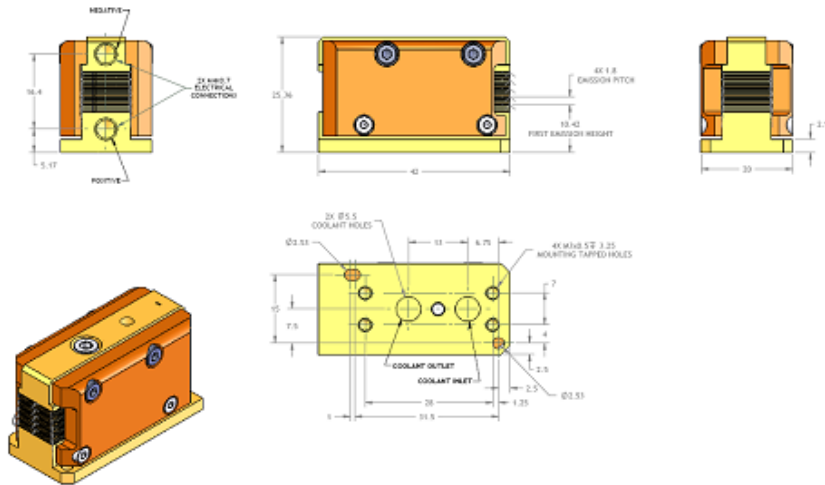
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## Typical Device Performance

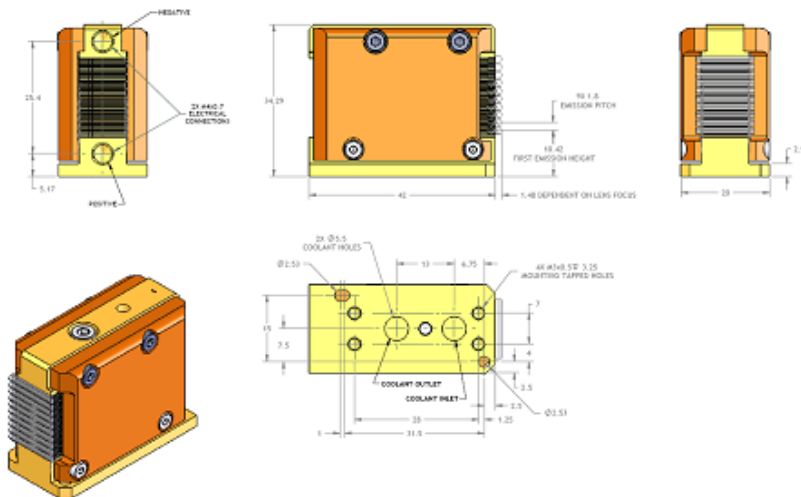
Package		VSA-ww-xxx-yyyy <sup>1</sup>		
<b>Optical</b>				
Wavelength	nm	790-830 nm		
Wavelength tolerance	nm	± 3		
CW output power/bar	W	60	80	100
Number of Bars <sup>2</sup>		1-20		
Fast Axis Divergence Un-lensed	°	35		
Fast Axis Divergence Lensed	°	0.25		
Slow Axis Divergence	°	10		
<b>Electrical</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 VSA-ww-xxx-yyyy: ww denotes the number of bars in the stack; xxx denotes CW power; yyyy denote</p> <p>2 VSA can be configured from 1-20 bars. Maximum Power is calculated by multiplying bar count by power/bar desired. Minimum Power is 1 bar, 60W stack. Maximum Power is 20 bar, 2kW stack.</p> <p>3 A non-condensing environment is required for storage and operation below ambient dew point.</p>				

## Package Dimensions

### Cascades™ Vertical Stacked Arrays 10 bar, unlensed



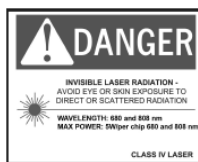
### Cascades™ Vertical Stacked Arrays 10 bar, lensed



**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.

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**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.