CASCADES™ ACTIVELY COOLED DIODE LASER BARS (NON VISIBLE)

nLIGHT's Cascades™, an actively, water-cooled, low thermal resistance bar provides end users with state-of-the-art power, brightness and reliability. These near-infrared (NIR) 1-cm arrays, based on our proprietary MOCVD structure, offer low beam divergence and narrow spectral bandwidth. Cascades™ are available in a wide range of wavelengths between 780 nm to 980 nm, and 1400 nm to 1600 nm.

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

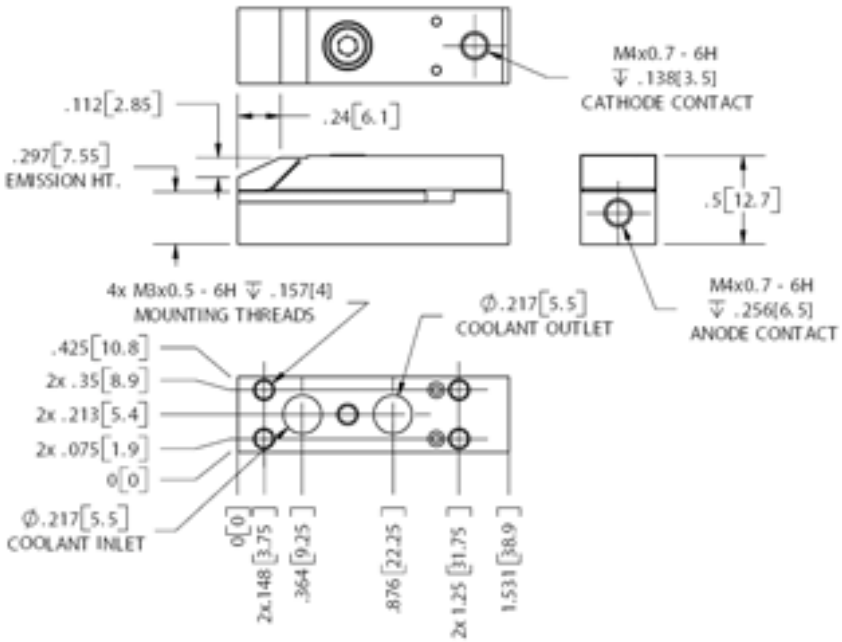
Applications

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

Features

- Highest power
- High reliability
- Low bar smile
- Fast- and slow-axis lensing
- High polarization purity

Package dimensions



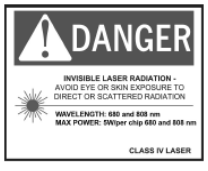
nLIGHT Corporation • 5408 NE 88th Street • Vancouver, WA 98665 • USA
Tel. +1 360 566 4460 • Fax. +1 360 546 1960 • sales@nlight.net • www.nlight.net

Typical device specification

		C1-xxx-yyy[1]					
Optical							
Center wavelength (Range)	nm	790 - 825	790 - 825	790 - 825	910 - 980	910 - 980	1400 - 1600
Center wavelength tolerance	nm	± 3	± 3	± 3	± 3	± 3	± 5
CW output power / bar	W	60	80	100	60	80	25
Bar length	cm	1	1	1	1	1	1
Number of emitters / bar	#	49	64	64	49	49	19
Emitter size	µm	100	100	120	100	100	100
Emitter spacing	µm	200	150	150	200	200	500
Spectral width (FWHM)	nm	< 3	< 3	< 3	< 4	< 4	< 10
Slope efficiency	W / A	> 1.1	> 1.05	> 1.0	> 0.9	> 0.9	> 0.4
Polarization	TM or TE	TM	TM	TM	TE	TE	TE
Fast-axis divergence (FWHM)	Degrees	36°	36°	36°	38°	38°	27°
Slow-axis divergence (FWHM)	Degrees	10°	10°	10°	10°	10°	10°
Wavelength temperature coefficient[2]	nm / °C	0.28	0.28	0.28	0.3	0.3	0.4
Electrical							
Power conversion efficiency	%	55	48	48	50	52	30
Threshold current (I_{TH})	A	14	24	26	8	12	10
Operating current (I_{OP})	A	60	92	110	70	95	70
Operating voltage / bar (V_{OP})	V	1.8	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	0.005
Mechanical							
Storage temperature range[3]	°C	10 to 40	10 to 40	10 to 40	10 to 40	10 to 40	10 to 40
Thermal							
Thermal resistance[4]	°C / W	0.35	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	20 to 35
Fluid flow rate	ml/min/plate	200 - 250	200 - 250	200 - 250	200 - 250	200 - 250	200 - 250
Max inlet pressure	psi	55	55	55	55	55	55
Inlet to outlet pressure drop	psi	35	35	35	35	35	35
Deionized water resistivity	MΩ - cm	0.15 - 0.3	0.15 - 0.3	0.15 - 035	0.15 - 0.3	0.15 - 0.3	0.15 - 0.3
Filter	µm	< 20	< 20	< 20	< 20	< 20	< 20

[1] C1-xxx-yyy: xxx denotes wavelength and yyy denotes rated output power.
[2] The wavelength temperature coefficient is the wavelength shift per °C change at the diode junction.
[3] A non-condensing environment is required for storage and operation below ambient dew point.
[4] 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.

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