


## Preliminary

# 110W 10xxnm High Power Laser Diode Bar on Microchannel Cooler

## BAC110C-10xx-01/02

The Bookham BAC110C-10xx-01/02 50% fill factor laser diode bar on microchannel cooler series has been designed to provide the increased brightness and reliability required for direct diode applications and as replacement for Nd:YAG lasers. The proprietary E2 front mirror passivation process, developed at our Zurich site, prevents Catastrophic Optical Damage (COD) to the laser diode facet even at extremely high output powers. The laser diode bars are mounted on an expansion matched CuW submount onto a water-cooled microchannel package providing very high reliability in CW and pulsed (1-Hz type) applications.

### Features:

- Mounted 10mm x 2.4mm laser diode bar
- Active microchannel cooler (water-cooled)
- 110W operating power
- Highly reliable single quantum well MBE structure
- Telecom grade AuSn mounting technology
- Assembly option with Cu base and cover
- Standard wavelength at 1030nm (others available on request)
- RoHS compliant 

### Applications:

- Direct applications such as material processing
- Nd:YAG laser replacement
- Medical
- Printing



## Characteristics

Parameter	Symbol	Typical	Unit
CW Output Power	$P_{op}$	110	W
Central Wavelength [1] BAC110C-1030-01/02	$\lambda_{c1030}$	$1030 \pm 10$	nm
Spectral Width (FWHM)	$\Delta\lambda$	4	nm
Wavelength Shift with Temperature	$d\lambda_c/dT_{op}$	0.3	nm/°C
Beam Divergence Parallel to Junction (90% of Power) Perpendicular to Junction (FWHM)	$\theta_{//}$ $\theta_{\perp}$	7 27	deg
Polarization	–	TE	–
Threshold Current	$I_{th}$	14	A
Slope Efficiency	$\eta_D = P_{op}/(I_{op}-I_{th})$	0.9	W/A
Conversion Efficiency	$H = P_{op}/(V_{op} \times I_{op})$	58	%
Series Resistance	$R_s$	1.3	mΩ
Operating Current	$I_{op}$	140	A
Operating Voltage	$V_{op}$	1.4	V
Operating Temperature	$T_{op}$	$25 \pm 5$	°C
Watercooler Flow	$Q_w$	$22 \pm 4$	l/hrs
Microchannel Cooler Differential Pressure	$P_w$	0.7	bar

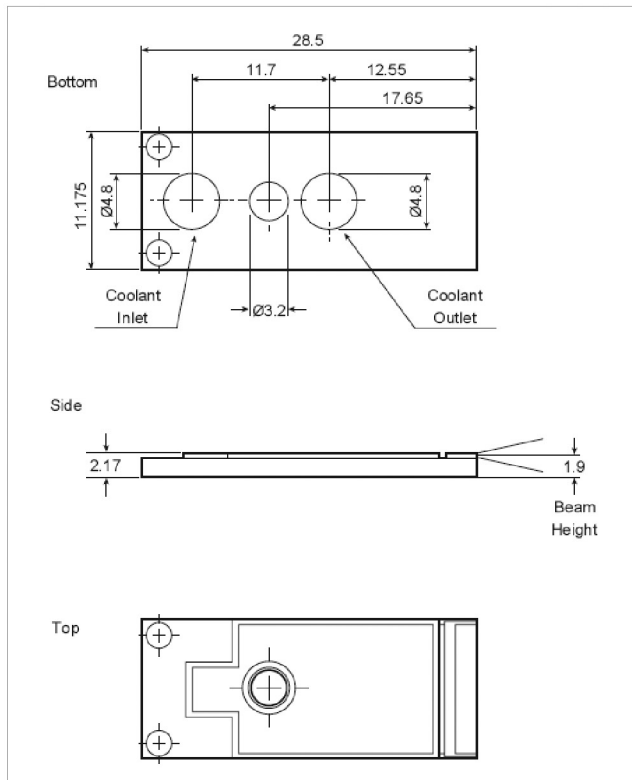
**Notes:**

[1] Reduced wavelength window/extended range available on request (900-1060nm).

## Bar Dimensions

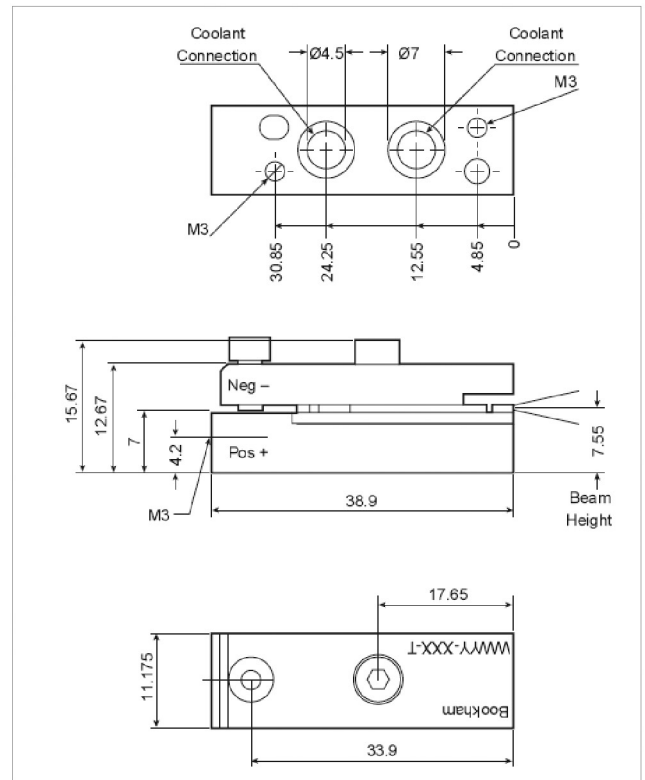
Parameter	Symbol	Typical	Unit
Bar Width	b	10	mm
Resonator Length	l	2.4	mm
Number of Emitters	n	48	–
Emitter Spacing	p	200	μm
Emitter Width	w	100	μm
Fill Factor	f	50	%

### Microchannel Cooler Dimensions (mm)



BAC110-10xx-01

### Microchannel Cooler with Base and Cover Dimensions (mm)



BAC110-10xx-02

## RoHS Compliance

Bookham is fully committed to environment protection and sustainable development and has set in place a comprehensive program for removing polluting and hazardous substances from all of its products. The relevant evidence of RoHS compliance is held as part of our controlled documentation for each of our compliant products. RoHS compliance parts are available to order, please refer to the ordering information section for further details.

### Ordering Information:

BAC110C-1030-01 110W 1030nm Laser Diode Bar on Microchannel Cooler  
 BAC110C-1030-02 110W 1030nm Laser Diode Bar on Microchannel Cooler with Base and Cover

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