

Preliminary

80W 9xxnm High Power Very High Brightness Laser Diode Bar on Microchannel Cooler

VAC80C-9xx-01/02

The Bookham VAC80C-9xx-01/02 laser diode bar on microchannel cooler series has been designed to provide highest brightness and reliability required for industrial applications. With the emission width only a third of conventional laser diode bars, the optimized angular power distribution is most suitable for applications requiring smallest spot size or lowest fiber core diameter. 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 submount onto a water-cooled microchannel package providing very high reliability in CW and pulsed (1-Hz type) applications.

Features:

- Mounted 3.6mm x 3.6mm laser diode bar
- Active microchannel cooler (water-cooled)
- 80W operating power
- Highly reliable single quantum well MBE structure
- Telecom grade AuSn mounting technology
- Standard wavelength at 915nm, 940nm, and 980nm (others available on request)
- RoHS compliant 

Applications:

- Solid-state and fiber laser pumping
- Direct applications such as material processing
- High-quality beam shaping applications
- Printing
- Medical



Characteristics

Parameter	Symbol	Typical	Unit
CW Output Power	P_{op}	80	W
Central Wavelength [1] VAC80C-915-01/02 VAC80C-940-01/02 VAC80C-980-01/02	λ_{c915} λ_{c940} λ_{c980}	915 ± 10 940 ± 10 980 ± 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)	$\theta_{//}$ $\theta_{\perp}$	9 29	deg
Polarization	–	TE	–
Threshold Current	I_{th}	11	A
Slope Efficiency	$\eta_D = P_{op}/(I_{op}-I_{th})$	1.1	W/A
Conversion Efficiency	$H = P_{op}/(V_{op} \times I_{op})$	60	%
Series Resistance	R_s	5	mΩ
Operating Current	I_{op}	84	A
Operating Voltage	V_{op}	1.6	V
Operating Temperature	T_{op}	25 ± 5	°C
Watercooler Flow	Q_w	22 ± 4	l/hrs
Microchannel Cooler Differential Pressure	P_w	0.7	bar

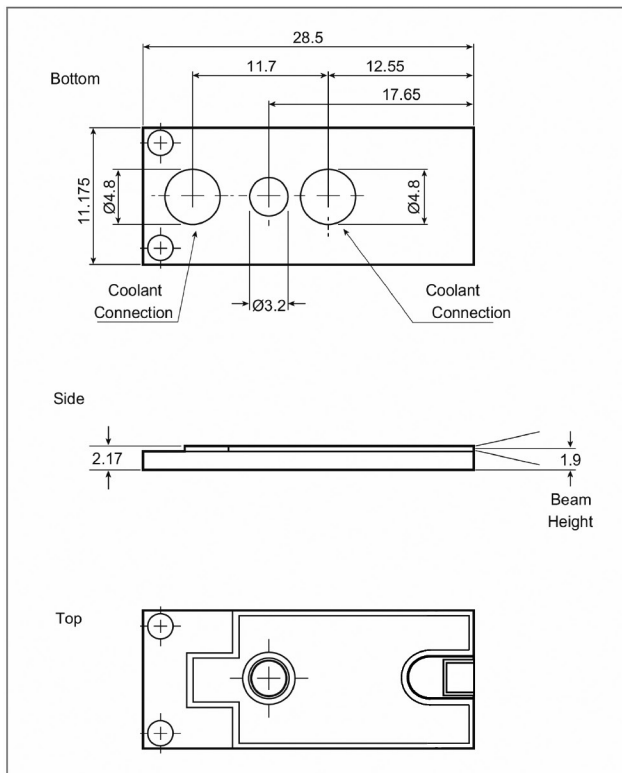
Notes:

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

Bar Dimensions

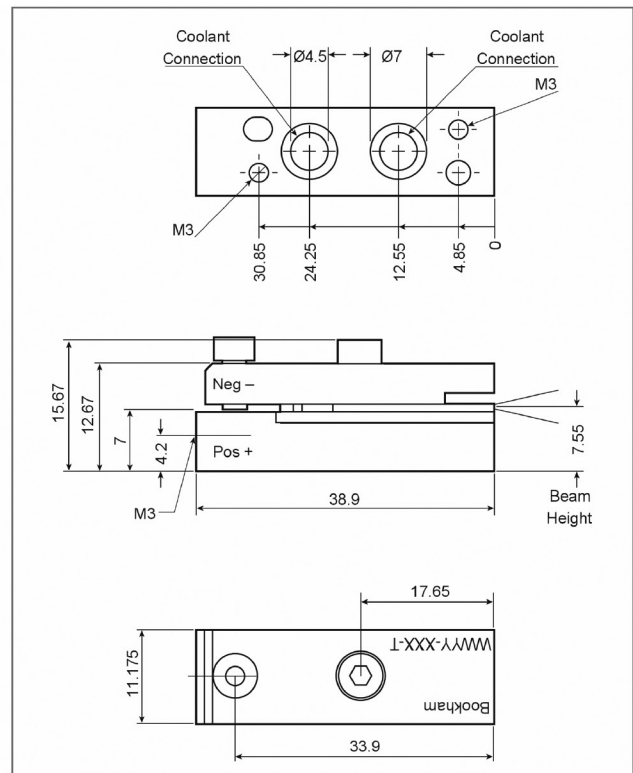
Parameter	Symbol	Typical	Unit
Bar Width	b	3.6	mm
Resonator Length	l	3.6	mm
Emission Area Length	w	3200	μm

Microchannel Cooler Dimensions (mm)



VAC80C-9xx-01

Microchannel Cooler with Base and Cover Dimensions (mm)



VAC80C-9xx-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:

VAC80C-915-01	80W 915nm Laser Diode Bar on Microchannel Cooler
VAC80C-940-01	80W 940nm Laser Diode Bar on Microchannel Cooler
VAC80C-980-01	80W 980nm Laser Diode Bar on Microchannel Cooler
VAC80C-915-02	80W 915nm Laser Diode Bar on Microchannel Cooler with Base and Cover
VAC80C-940-02	80W 940nm Laser Diode Bar on Microchannel Cooler with Base and Cover
VAC80C-980-02	80W 980nm Laser Diode Bar on Microchannel Cooler with Base and Cover

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