monocrom
LASER DIODE DEVICES

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Business Division	LDBA
Product	**LB-80A01-25CW-2 series**
Description	**Single Laser Bar 808 +/- 3 nm @ 100 W CW, 125 W QCW, water cooled**

Laser Diode Bar Assemblies

Main Features

Solder-free diode bar mounting technology, exclusive from MONOCROM S.L.

- **Long lifetime,** due to the absence of the mechanical stress caused by the soldering process at high temperature.
- **Minimum "smile",** less than 0.5 mm.
- **High reliability in pulsed conditions,** since the clamped bars do no suffer the same fatigue effect than the soldered ones due to the thermal cycle.
- **Small thermal resistances,** owing to the reduction of the contact resistance between electrodes and laser bar. No micro channels are needed to reach low thermal resistances.
- **Large storage temperature interval,** tested from –60ºC to + 85ºC

Monocrom active mounting uses millimetre-water channels instead of micro-channels.

TAP WATER CAN BE USED FOR COOLING, without any obtruction or channel degradation.

Main Applications

- Extreme Environmental conditions – aeronautics, space, automotion.
- Pulsed-Energy mode – medicine, aesthetic, laser pumping.
- Material processing – fiber coupling, plastic and metallic industry, research.

Picture

Examples of OEM modules:

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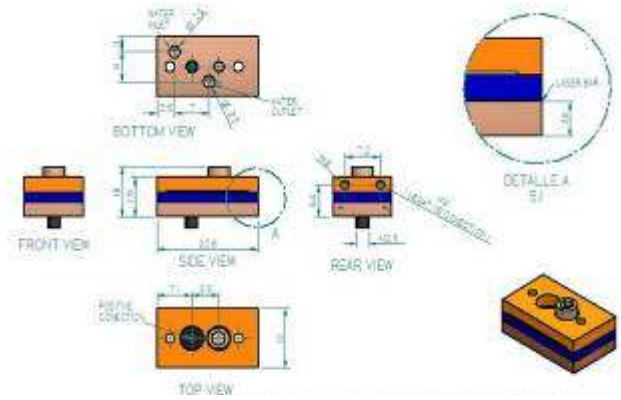
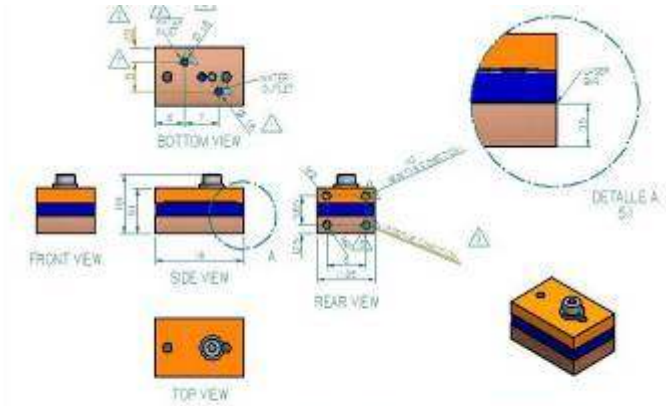
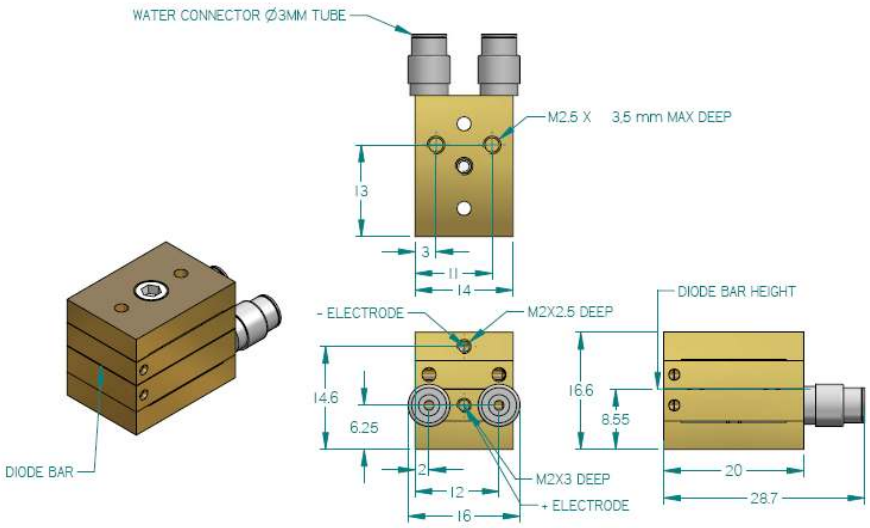
Outline

Examples of OEM modules with water-inlet and -outlet from below:





Examples of OEM modules with water-inlet and -outlet from behind:



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LB-80A01-25CW | GENERAL TECH SPECIFICATIONS	
Product number (according to type of diode laser bar)	**LB-80A01-25CW-2**
Number of emitters in the laser bar	25
Laser Bar geometry [1]	1 cm wide 50% fill factor emitter size: 200 μm emitter spacing: 400 μm
Center wavelength [1]	808 ± 3nm
Typical Spectral Bandwidth FWHM (nm)	2 – 3,5 nm
Wall Plug efficiency (W/A, %)	Up to 70%
Typ. output peak power, Pop	100 W CW (125 W QCW)
Typ. operation current (for typ. power), Iop[1]	100-115 A (125-135A QCW)
Threshold current, typical[1]	20 A
Pulse length[2]	Without limits
Duty cycle, DC[2]	<50 % QCW
Wavelength Temp.Coefficient	0,27-0,3 nm/ºC
Thermal resistance[3]	0,3-0,6 ºC/W
Smile	< +/- 0,3 μm
Voltage @ Iop	1,6-2 V (Base to + voltage)
ΔV/I(1)	2 to 2.5 mV/A
Beam divergence FWHM[1]	Typical high divergence without collimation optics (~30º-fast axis; 10º-slow axis)
Beam divergence with FAC[4]	FAC: FA(3-6mrad) SA 10°
Cooling	TAP water (distilled water with 5% ethylenglycol is recommended)
Water connection	From behind (with fast connectors) or below
Water pressure	2 – 3 bar
Water flow	> 0.3 l/min
Water temperature[5]	<25ºC. If wet atmosphere, T>15ºC is recommended
Water connections	Water flow outlet for Ø3-4mm tube
Water tubes, typical	Rigid tube Øint.2mm / Øext.3mm
Electrical connections	Threads M2mm or fast connectors Pin Ø2x10mm according to design
Laser class product (EN-60825)	4
Expected lifetime	>10.000 hours CW 10^9 shoots QCW tp<1ms 10^8 shoots QCW tp>1ms

Created by GVM, on 03/05/2009

1) **These values could change depending on the type of laser bars chosen by customer.**
2) **Higher values also available for lower operation current.**
3) **Low thermal resistance is possible without micro-channels by cooling both anode and cathode with millimetre-channels. The different values depend on the type of mounting.**
4) **Some designs of mounts do not allow the FSAC collimation**
5) **Water temperature could be increased for lower DC, up to 45ºC for 1%DC. A non-condensing environment is required for storage and operation below the ambient dew point.**

Parametrical and dimensional specifications can be modified upon request.
Device sensitive to ESD & dust contamination => To handle under clean area conditions advice.