monocrom
LASER DIODE DEVICES

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Product Division	LDBA — **Laser Diode Bar Assemblies**
Product	LB-80A10-60QCW-2
Description	LBS 60em., 10 bars, 808 +/- 3 nm @ 270W/bar up to 2700 W QCW, water-cooling (FAC optional)

Main Features

Solder-free diode bar mounting technology, exclusive from MONOCROM S.L.
The main features of the solder free concept of the clamp-mounting technology are:

- Long lifetime, due to the absence of the mechanical stress caused by the soldering process at high temperature.
- Minimum “smile”, less than 0.5 □m.
- 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 microchannels. NORMAL WATER CAN BE USED FOR COOLING. No problems of obstruction or channel degradation exist.

Some Applications

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

Picture(s)

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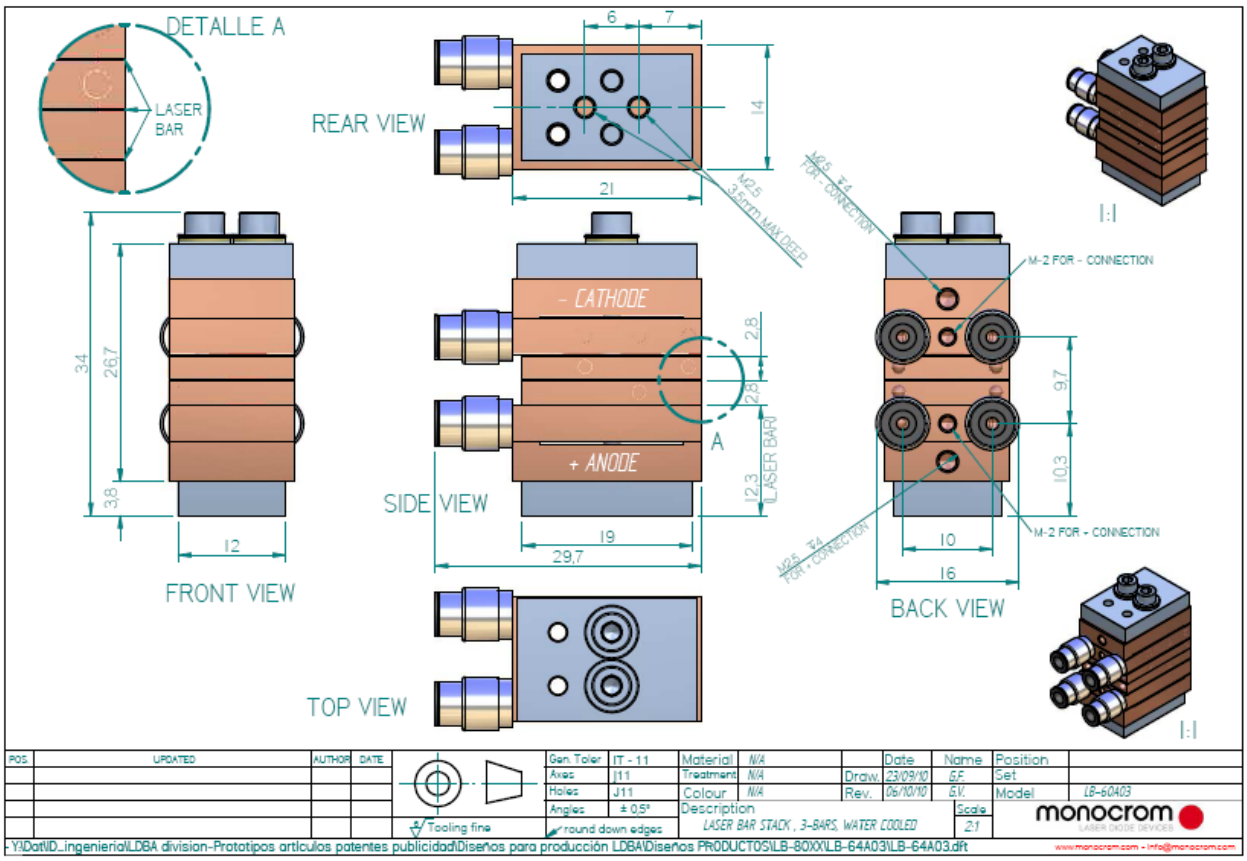
Outline



(Example for three-bar stack)

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LBS-80A10-60QCW-2 | GENERAL TECH SPECIFICATIONS				
Product number (according to type of diode)	LB-80A10-60QCW-2; 10 bars 808 nm, water cooled, 60em-270W bars, QCW operation			
Number of laser bars	10			
Number of emitters in each laser bar	60 – 75			
Laser bar geometry	1 cm wide emitter size: 110 – 150 μm	80 – 90 % fill factor emitter spacing: 130 – 160 μm		
Center wavelength [1]	808 ± 3nm			
Output peak power,Pop, maximum [2]	2700			
Operation current (A), typical, Iop	260A			
Threshold current (A)	30A			
TYP. OPERATION MODES				
Peak power, maximum	2700	2500	2000	1500
Current (A), typ. for max. power	260	250	200	160
Operation voltage (V), typ.	21,5	21	20	19
Pulse length (ms), Max	1	5	10	20
Duty cycle, Max	10	12	15	20
Wavelength FWHM [3]	2,5 nm			
Polarization	TM or TE			
Wavelength Temp. Coefficient	0,3 nm/ºC			
Thermal resistance @ 1l/min [4]	0,085 ºC/W			
Collimation	Cylindrical lenses on each diode bar, glued at the laser stack 5% power losses expected from lenses			
Beam divergence without collimation	Fast axis ≈ 35º, slow axis ≈ 10º			
Beam divergence with pre-collimation	Fast axis ≈ 3-6 mrad, slow axis ≈ 10º			
Laser spot size after optics (Height x width)	23 x 11 mm			
Total stack size (Height x width x depths)	35x14x30 mm			
Cooling System	TAP water (distilled water with 5% ethylenglycol is recomm.)			
Water pressure	2-3 bars			
Water flow	>0,5 l/min			
Diode operation temperature, for max. Power [5]	<25ºC. If wet atmosphere, T>15ºC is recommended			
Electrical connections	Fast connectors (Pin ∅2x10mm), or threads M2mm			
Water connections	Water flow outlet for Ø3mm tube			
Water tubes	Rigid tube Øint.2mm / Øext.3mm			
Laser class product (EN-60825)	4			
Expected lifetime < 1ms	10^9 pulses			

(1) Wavelengths from 780 to 1060 nm also available on request.
(2) Peak power before collimation lenses
(3) Spectral Width per bar. The total spectral width of the stack will depend on the center wavelength tolerance of the bars forming the stack, on duty cycle and pulse width.
(4) The module should be cooled properly to achieve these values
(5) Operation temperature could be increased for lower average power or QCW operation

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

Ordering Information:

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