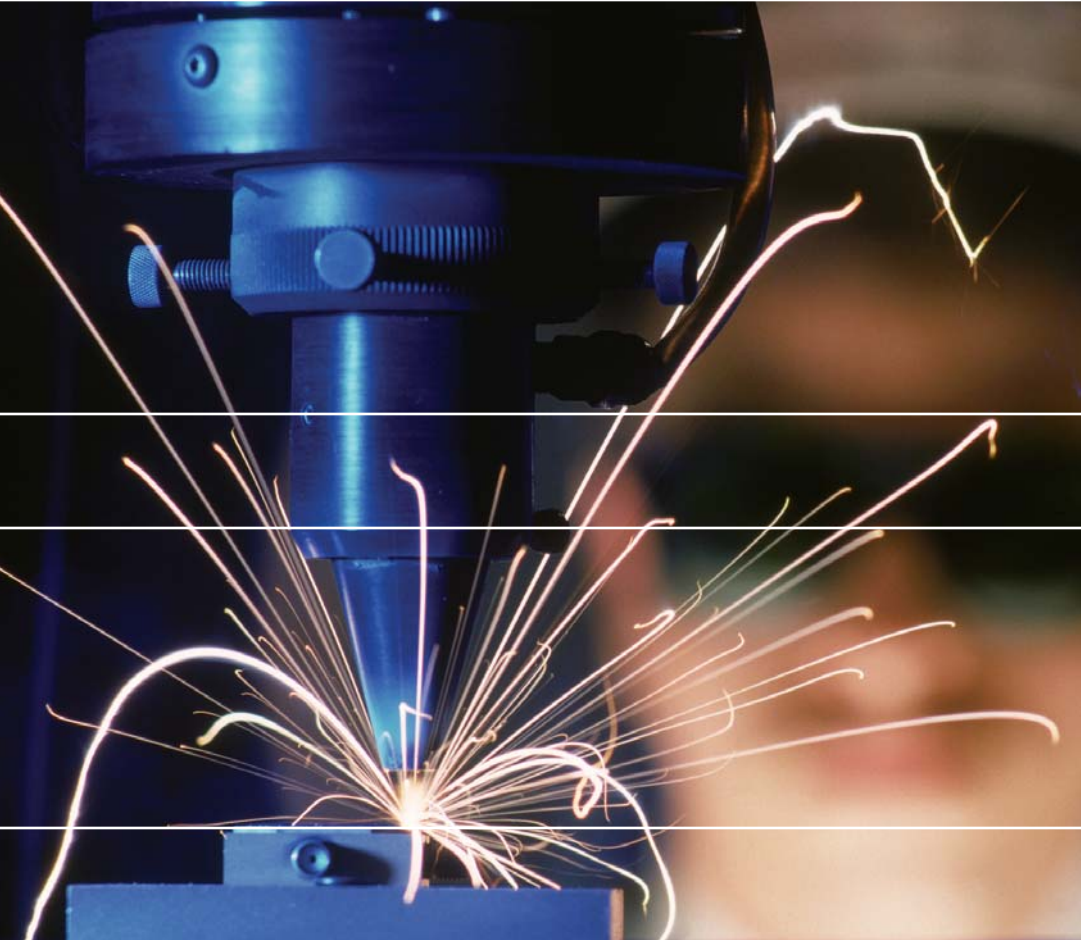




High-Power Laser Diode Solutions

Complete Portfolio from Laser Bars to Laser Systems



Superior Reliability & Performance

Complete Solutions

Coherent has introduced a new line of high-power laser diode products ranging from bars to full turnkey systems. All of these new solutions-based products feature our proprietary Aluminum-free Active Area (AAA™) epitaxial system, which sets the industry standard for telecom reliability in real-world environments. And our new PulseLife™ hard-solder, indium-free packaging process assures long time, industrial-grade performance.


A complete line of standard products are available for immediate delivery. We also manufacture custom and semi-custom products based on your requirements. From engineering support through operations planning, please let us know today how we can serve you.

High-Power Laser Diode Solutions

Complete Portfolio – Laser Bars to Laser Systems

Power Capability ¹ (W)	Product Line	Center Wavelengths ² (nm)				
		680	690	785	790	795
Packaged Single Emitters	C-Mount	0.5	0.5	Contact PLM		3
	HHL	0.5	0.5	" "		3
	NCCP	-	-	" "		7
Single Fiber-Coupled	F6	0.375	0.4	Contact PLM		2.4
Unmounted Bars	UMB 30% FF/1.0 mm (CW)	-	-	Contact PLM		40
	UMB 30% FF/1.5 mm (CW)	-	-	" "		50
	UMB 50% FF (CW)	-	-	" "		60
	UMB 90% FF/0.6 mm (QCW) ³	-	-	" "		70
	UMB 90% FF/1.0 mm (QCW) ³	-	-	" "		100
Packaged Bars	CCP (CW)	-	-	Contact PLM		55
	CCP (QCW) ³	-	-	" "		100
	NCCP	-	-	" "		20
	WCP	-	-	" "		60
Line Imaging Module	LIM	-	-			
Fiber-Coupled Bars	FAP 600 (FAP-B, LB, I)	-	-	Contact PLM		35
	FAP 800 (FAP-B, LB, I)	-	-	" "		40 to 50 ³
Vertical Arrays	G-Stacks (QCW) ⁴	-	-	Contact PLM		100 to 200
	MCCPs (CW) ⁴	-	-	" "		80
Horizontal Arrays	Horizontal Array (CW) ⁴	-	-	Contact PLM		40 to 60
	Horizontal Array (QCW) ⁴	-	-	" "		100
FAP Systems	FAP System	-	-	Contact PLM		30
	Scientific Duo FAP System	-	-	" "		60
	Industrial Duo FAP System	-	-	" "		-
	Quattro FAP System ⁵	-	-	" "		-
HighLight™ Systems	ISL Series	-	-	-		-

 Standard products available.

 OEM capabilities – available only by Product Line Manager (PLM) approval to volume OEM customers.



Center Wavelengths² (nm)

797	800	805	808	810	825	880	915	940	975/6	980
3	1.6 to 3 ³	3	3	3	3	3	Contact PLM	4	4	4
3	1.6 to 3 ³	3	3	3	3	3	Contact PLM	4	4	4
7	7	7	7	7	7	—————	Contact PLM	—————	—————	—————
1.5 to 2.4 ³	2.4	2.4	2.4	2.4	2.4	—————	Contact PLM	—————	—————	—————
40	40	40	40	40	40	40	—————	Contact PLM	—————	—————
50	50	50	50	50	50	50	Contact PLM	50	50	50
60	60	60	60	60	60	60	Contact PLM	60	60	60
70	70	70	70	70	70	—————	Contact PLM	—————	—————	—————
100	100	100	100	100	100	100	—————	Contact PLM	—————	—————
55	55	55	55	55	55	50	—————	50 to 75 ³	50 to 75 ³	50 to 75 ³
100	100	100	100	100	—————	—————	Contact PLM	—————	—————	—————
20	20	20	20	20	20	—————	Contact PLM	—————	—————	—————
60	60	60	60	60	60	—————	Contact PLM	—————	—————	—————
—————	Contact PLM	—————	—————	—————	60	—————	Contact PLM	—————	—————	—————
35	35	35	35	35	35	30	Contact PLM	35	35	35
50	50	50	50	50	50	50	Contact PLM	50	50	50
100 to 200	100 to 200	100 to 200	100 to 200 ³	100 to 200	—————	—————	Contact PLM	—————	—————	—————
80	80	80	60 to 80 ³	80	80	80	60 to 80 ³	80	60 to 80 ³	60 to 80 ³
40 to 60	40 to 60	40 to 60	40 to 60 ³	40 to 60	40 to 60	—————	Contact PLM	—————	—————	—————
100	100	100	100	100	100	—————	Contact PLM	—————	—————	—————
30	30	30	30	30	30	30	Contact PLM	30	30	30
60	60	60	60	60	60	60	Contact PLM	60	60	60
-	-	-	-	60	—————	—————	Contact PLM	60	-	60
-	-	-	-	120 ⁵	—————	—————	Contact PLM	120	-	120
-	-	1 to 4 kW	-	-	-	-	-	1 to 4 kW	-	-

¹ Assumes minimum 10k hour reliability capability with exception of 680 and 690 nm. Higher power may be possible for 1k to 5k hours lifetime (e.g., medical applications).

Contact PLM for 680 and 690 lifetime information.

² Standard wavelength tolerances:

±3 nm @ 785, 790, 795, 797, 800, 805, 808, 880, 915 and 975/976 nm

±5 nm @ 680, 690, 825 and 940 nm

±10 nm @ 810 and 980 nm

³ Standard products indicating power ranges: Low end of power range is standard product; high end of power range is OEM capability.

⁴ Vertical arrays and horizontal arrays: Power indicated is per bar.

⁵ 810 nm 120W Quattro System: Maximum power assumes pulsed operation, less than 50% duty cycle.

High-Power Laser Diode Solutions

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Conductively-Cooled Packages (CCPs)

PulseLife conductively-cooled packaged diodes are designed for pumping, direct-diode materials processing, medical, reprographics, and illumination applications. Using PulseLife solder technology, industrial applications achieve >20k hours MTTF at up to 75W CW, even in on-off hard-pulsed operation mode. In QCW mode, operations at temperatures as high as 75°C are achieved. Standard configurations at 795, 808, 825, 880, 940 and 980 nm are available.



Horizontal Linear Diode Arrays

PulseLife water-cooled horizontal linear arrays deliver up to 60W/bar of pump power. Utilizing our PulseLife solder technology, they have MTTF >20k hours. The unique “macro” channel design eliminates the complicated water requirements of other water-cooled heat sinks. Standard products at 808 nm, in 2-bar or 3-bar configurations, are available.

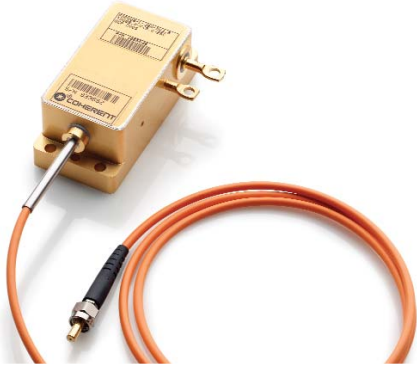


Fiber Array Packages (detachable fiber)

Conductively-cooled fiber-coupled diode laser bars are available with fiber bundle diameters of 800, 600 and 400 μm and at powers up to 50W. Standard configurations at 795, 808, 880, 940 and 980 nm are designed for medical, pumping solid-state lasers, defense, and direct-diode applications. PulseLife FAP configurations are available for on-off applications in materials processing.

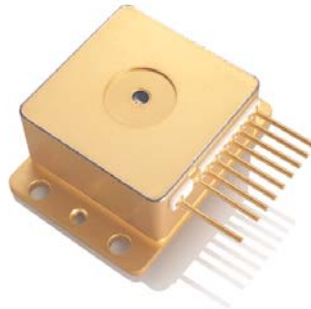
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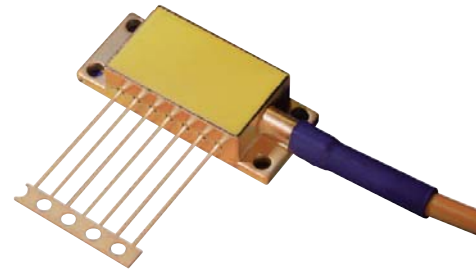
Fiber Array Packages - LB
(attached fiber)

Long-bundle (LB) FAPs with attached fibers are standard. Optional reduced NA (<0.11) or integrated aiming beam packages are also available, as are 2-to-1 or 3-to-1 configurations for unique applications. Standard configurations are 795, 808, 880, 940 and 980 nm. Standard PulseLife FAP-LB configurations are available for on-off applications in materials processing.



Single Emitter Packages

These single-stripe diode lasers are mounted either on industry-standard heat sinks or in sealed windowed packages. Standard C-mount and HHL packages, including integrated photodiode, thermistor and TEC, are available. Standard wavelengths are 680, 690, 797, 800, 805, 808 and 980 nm. CW power up to 7W with emitter widths of 100, 150, 200 and 500 μm is available.



Single Fiber-Coupled Packages

These are single-stripe diode lasers in environmentally sealed packages, coupled to a 100, 150 or 200 μm core fiber. An integrated photodiode and thermistor are included. An optional TEC is available. Standard wavelengths are 890 and 808 nm, with CW power up to 2.4W.

High-Power Laser Diode Solutions

Complete Portfolio – Laser Bars to Laser Systems



MCCP Vertical Diode Arrays

MCCP high-power laser diode pump arrays provide up to 2.7 kW CW power in a single vertical array with an industry-leading 1.6 mm bar-to-bar pitch. The water inlet and outlets are located on the bottom of the lower manifold, which allows arrays to be placed adjacent to each other, with an array-to-array lateral pitch of just over 1.1 cm. The electrical connections are located on the back side of the arrays and can be connected electrically in series to form a high-power, two-dimensional pump array. Each of the individual bars can be collimated in the fast axis to greater than 0.25 degrees at (FWHM) and in the slow axis to 4.5 degrees.



MCCP Single-Bar and Three-Bar Arrays

The high-brightness MCCP laser diode pump array provides up to 80W CW power per bar from this package with >10k hours of lifetime. The water inlet and outlets are located on the bottom of the lower manifold, which allows arrays to be placed adjacent to each other with an array-to-array lateral pitch of just over 1.2 cm.

Each of the individual bars can be collimated with a cylindrical lens in the fast axis to better than 0.5 degrees (FWHM).

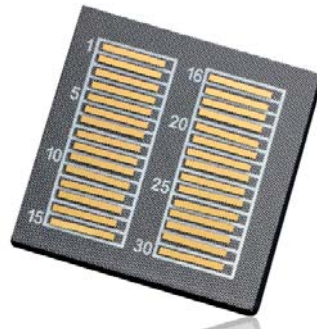
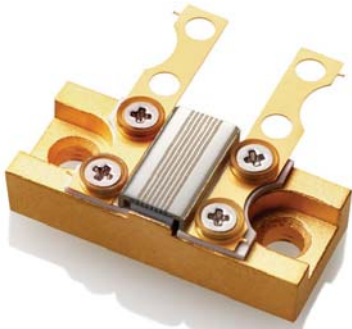


MCCP Laser Bars

The MCCP bar provides up to 80W of CW optical pump energy in a compact, water-cooled package with >10k hours MTTF. Utilizing advanced materials technology, these bars provide high output power, enhanced efficiency, and long life in either pulsed or CW operation. When these compact, high-intensity coolers are stacked in a series electrical connection, they can provide up to 2700W of CW optical power. Mounting tabs are provided on each of the coolers so that optical elements may be placed as necessary to couple the array to the media being pumped.

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G-Stack Vertical Diode Arrays

PulseLife G-stacks set a higher standard of reliability for demanding commercial and defense applications. Using our new PulseLife solder technology, reliability >1E9 shots at 80W/bar QCW and 50°C is achieved. Standard bar configurations at 808 nm, from 240W to 560W, are available for pumping solid-state lasers, as well as for illumination and direct-diode applications. PulseLife G-stacks, which can be customized in power and wavelength for special OEM needs, provide users with a new level of performance and reliability.

Unmounted Laser Bars

These unmounted semiconductor diode laser bars feature our proprietary AAA epitaxial structure. Aluminum-free Active Area epitaxial has set the industry standard for high reliability in field applications. Increasing the efficiency and performance of our high-power laser bars are among the most important elements in our continuous improvement program.

Our unmounted laser bars are available in a standard 1 cm width, with various fill-factors and cavity lengths. Standard wavelengths are 808, 940 and 980 nm.

Turnkey Laser Systems

We manufacture full-featured systems from 1W to >4 kW for a wide range of industrial applications.

Low Power

FAP, Duo FAP, Quattro FAP and F-Systems are available. CW output powers range from 1W to 200W, and standard wavelengths are 795, 808 and 980 nm. Options include an aiming beam, and the choice of a TTL, RS-232 or analog interface.

High Power

This family of direct-diode systems is ideal for industrial materials processing applications such as cladding, heat treating and welding. Free-space or fiber-coupled models are available with >4 kW CW power, featuring single wavelength output at 805 or 940 nm, and wall-plug efficiencies >40%.

Coherent as your partner.

To compete and succeed in today's fast-paced research and manufacturing environments, you need a laser partner who understands your needs. A partner who can provide a wide range of technology solutions, and the support that goes with them.

Since 1966, Coherent has been helping customers by providing complete laser-based solutions for a wide range of commercial and scientific applications.

With a heritage of innovation and an uncompromising position on quality, Coherent is the most forward-thinking and diversified manufacturer of solid-state, gas, excimer and semiconductor lasers in the industry.

For more information, visit us on the Web at www.Coherent.com. Or call 800-527-3786.



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