

Unmounted Diode Laser Chips (UMCs), 780-830 nm

High Power Single Emitters for Pumping and Direct-Diode Applications

Based on Coherent's legendary Aluminum-free Active Area (AAA[™]) epitaxy, Coherent 780-830 nm devices provide unsurpassed reliability and performance. Standard options include 3.5W 100 µm and 7W 200 µm wide emitters. Specifications and options—including power, wavelength, and package design—can be tailored to your demands.

Please contact Coherent to discuss your unique requirements.

Unmounted Diode Laser Chips, 780-830 nm Features:

- Unique AAA epitaxial technology for highest reliability and lifetime
- High efficiency
- Up to 7W from a 200 µm wide emitter
- Up to 3.5W from a 100 µm wide emitter

Unmounted Diode Laser Chips, 780-830 nm Applications:

- Laser Pumping
- Medical
- Materials Processing
- Illumination



www.Coherent.com/UMC780-830

Superior Reliability & Performance

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	100 um emitter width	
Device Specifications ^{12,3,4}	3W 100μm x 2mm	3.5W 100µm x 2mm
Optical Output Power (W)	3	3.5
Emitter Width (μm)	100	100
Chip Width (μm)	500	500
Cavity Length (mm)	2	2
Shipping/Delivery Configuration	21-emitter chip-bar	21-emitter chip-bar
Centroid Wavelength Available⁵ (nm)	780 to 830	780 to 830
Spectral Width, Standard (nm)	<3	<3
Wavelength Temperature Coefficient (nm/°C)	0.28	0.28
Polarization	TE	TE
Fast Axis Divergence (degrees)(FWHM)	31	29
Slow Axis Divergence (degrees)(FWHM)	<10	<10
Threshold Current (A)	0.5 typical	o.5 typical
Operating Current (A)	<3 (2.7 typical)	<3.5 (3.0 typical)
Operating Voltage (V)	<2.0	<2.0
Expected Lifetime (hours)(on a qualified package)	>20,000	>20,000

Chip-Bar Parameters

Emitter Width (µm)	100	100
Emitter-to-Emitter Pitch (µm)	500	500
Emitter Number	21	21
Cavity Length (mm)	2	2
Chip-Bar Dimensions (mm)	11.5 X 2	11.5 X 2
 Chip-Bar Thickness (μm)	135	135

Wavelength specifications are based on testing of unmounted bars under low current, low duty cycle, short-pulsewidth test conditions. Contact factory for details.
Devices are qualified on a Coherent c-mount operated at full power and 25°C. Customers' results may vary as a function of packaging stress, packaging thermal resistance,

operating power, and temperature.

³ Specifications listed here apply at beginning of life. Operating current at end of life is 120% the operating current at beginning of life.

⁴ Please consult the factory for any requirements not listed, including the following options: - Centroid wavelength and spectral width requirements other than listed here.

- Optical output powers other than listed here.

- Emitter aperture widths other than listed here.

⁵ Contact factory for availability.

Delivery Notes

Unless otherwise specified, unmounted chips are delivered in the form of multi-emitter chip-bars and customer is responsible for cleaving the bar into chips.

Operation Notes

Negative current transients greater than 25 μA and/or reverse voltages >3V can destroy the device.



Unmounted Diode Laser Chips (UMCs), 780-830 nm

High Power Single Emitters for Pumping and Direct-Diode Applications

	200 um emitter width	
Device Specifications ^{1,2,3,4,5}	5W 200μm x 2mm	7W 200µm x 2mm
Optical Output Power (W)	5	7
Emitter Width (μm)	200	200
Chip Width (μm)	500	500
Cavity Length (mm)	2	2
Shipping/Delivery Configuration	21-emitter chip-bar	21-emitter chip-bar
Centroid Wavelength Available ⁶ (nm)	780 to 830	780 to 830
Spectral Width, Standard (nm)	<3	<3
Wavelength Temperature Coefficient (nm/°C)	0.28	0.28
Polarization	TE	TE
Fast Axis Divergence (degrees)(FWHM)	31	29
Slow Axis Divergence (degrees)(FWHM)	<10	<10
Threshold Current (A)	1.1 typical	1.1 typical
Operating Current (A)	<5.5 (5.0 typical)	<8.5 (8.0 typical)
Operating Voltage (V)	<2.1	<2.0
Expected Lifetime (hours)(on a qualified package)	>20,000	>20,000

Chip-Bar Parameters

Emitter Width (µm)	200	200
Emitter-to-Emitter Pitch (µm)	500	500
Emitter Number	21	21
Cavity Length (mm)	2	2
Chip-Bar Dimensions (mm)	11.5 X 2	11.5 X 2
 Chip-Bar Thickness (μm)	135	135

¹ Wavelength specifications are based on testing of unmounted bars under low current, low duty cycle, short-pulsewidth test conditions. Contact factory for details.

² 1W to 7W devices are qualified on a Coherent c-mount operated at full power and 25 deg C. Customers' results may vary as a function of packaging stress, packaging thermal resistance,

operating power, and temperature.

³ 10W devices are qualified as a full 13-emitter bar packaged on a Coherent conduction cooled bar package. Contact factory for details.

⁴ Specifications listed here apply at beginning of life. Operating current at end of life is 120% the operating current at beginning of life.

⁵ Please consult the factory for any requirements not listed, including the following options:

- Centroid wavelength and spectral width requirements other than listed here.

- Optical output powers other than listed here.

- Emitter aperture widths other than listed here.

⁶ Contact factory for availability.

Delivery Notes

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Negative current transients greater than 25 μA and/or reverse voltages >3V can destroy the device.



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Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice.

Coherent's scientific and industrial lasers are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by the Center for Devices and Radiological Health on all systems ordered for shipment after August 2, 1976.

Coherent offers a limited warranty for all Unmounted Diode Laser Chips. For full details of this warranty coverage, please refer to the Service section at www.Coherent.com or contact your local Sales or Service Representative.