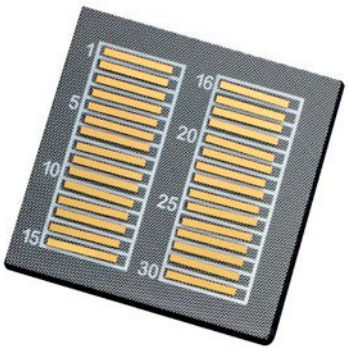
Unmounted Diode Laser Bars (UMBs), 780-830 nm



High-Power Diode Laser Bars for Pumping and Direct-Diode Applications

DEVICE SPECIFICATIONS[1,2,3,4,5,6,7]	18% fill factor bars	
	40W 18FFX2mm TE	60W 18FFX2mm TE-PLUS
Bar Geometry	18FFx2mm	18FFx2mm
Polarization	TE	TE
Rated Power (W) (at Tj ≤50°C)	40	60
Pulsewidth (µs)	-	-
Duty Cycle (%)	-	-
Fill Factor (%)	18	18
Number of Emitters	19	19
Emitter Width (µm)	90	90
Emitter-to-Emitter Pitch (µm)	500	500
Cavity Length (mm)	2	2
Centroid Wavelength Available[1,8] (nm)	780 to 830	780 to 830
Centroid Wavelength, Standard[1] (nm) (at 25°C)	808 ±3	808 ±3
Spectral Width, Standard[1] (nm)	<3	<3
Wavelength Temperature Coefficient (nm/°C)	0.28	0.28
Fast Axis Divergence (degrees) (FWHM)	31	29
Slow Axis Divergence (degrees) (FWHM)	<10	<10
Threshold Current (A)	8 typical	8 typical
Operating Current (A)	<46 (42 typical)	<62 (58 typical)
Operating Voltage (V)	<2.0	<2.0

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 <=80W CW bars are qualified on a Coherent conduction-cooled package (CCP) 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 >=100W CW bars are qualified on a Coherent water-cooled package (WCP) operated at full power and 25°C. Customers' results may vary as a function of packaging stress, packaging thermal resistance, operating power, and temperature.
4 200W QCW bars are qualified on a Coherent conduction-cooled package (CCP) operated at the indicated nominal conditions and 25°C. Customers' results may vary as a function of packaging stress, packaging thermal resistance, operating power, and temperature.
5 300W and 500W QCW bars are qualified as half-bars on a Coherent conduction-cooled package (CCP) operated at half the rated full-bar power at the indicated nominal conditions and 25°C. Customers' results may vary as a function of packaging stress, packaging thermal resistance, operating power, and temperature.
6 Specifications listed here apply at beginning of life. Operating current at end of life is 120% the operating current at beginning of life.
7 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.
8 Contact factory for availability.

OPERATION NOTES:

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

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DEVICE SPECIFICATIONS[1,2,3,4,5,6,7]	28-30% fill factor bars			
	40W 30FFX1mm TM	50W 30FFX1.5mm TM	60W 28FFx2mm TE	80W 28FFx2mm TE-Plus
Bar Geometry	30FFx1mm	30FFx1.5mm	28FFx2mm	28FFx2mm
Polarization	TM	TM	TE	TE
Rated Power (W) (at Tj ≤50°C)	40	50	60	80
Pulsewidth (µs)	-	-	-	-
Duty Cycle (%)	-	-	-	-
Fill Factor (%)	30	30	28	28
Number of Emitters	19	19	19	19
Emitter Width (µm)	150	150	140	140
Emitter-to-Emitter Pitch (µm)	500	500	500	500
Cavity Length (mm)	1	1.5	2	2
Centroid Wavelength Available[1,8] (nm)	780 to 830	780 to 830	780 to 830	780 to 830
Centroid Wavelength, Standard[1] (nm) (at 25°C)	808 ±3	808 ±3	808 ±3	808 ±3
Spectral Width, Standard[1] (nm)	<3	<3	<3	<3
Wavelength Temperature Coefficient (nm/°C)	0.28	0.28	0.28	0.28
Fast Axis Divergence (degrees) (FWHM)	31	31	31	29
Slow Axis Divergence (degrees) (FWHM)	<10	<10	<10	<10
Threshold Current (A)	12 typical	10 typical	12 typical	12 typical
Operating Current (A)	<46 (40 typical)	<55 (50 typical)	<70 (65 typical)	<83 (79 typical)
Operating Voltage (V)	<2.0	<2.0	<2.0	<2.0

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 <=80W CW bars are qualified on a Coherent conduction-cooled package (CCP) 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 >=100W CW bars are qualified on a Coherent water-cooled package (WCP) operated at full power and 25°C. Customers' results may vary as a function of packaging stress, packaging thermal resistance, operating power, and temperature.
4 200W QCW bars are qualified on a Coherent conduction-cooled package (CCP) operated at the indicated nominal conditions and 25°C. Customers' results may vary as a function of packaging stress, packaging thermal resistance, operating power, and temperature.
5 300W and 500W QCW bars are qualified as half-bars on a Coherent conduction-cooled package (CCP) operated at half the rated full-bar power at the indicated nominal conditions and 25°C. Customers' results may vary as a function of packaging stress, packaging thermal resistance, operating power, and temperature.
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- Centroid wavelength and spectral width requirements other than listed here.
- Optical output powers other than listed here.
- Emitter aperture widths other than listed here.
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OPERATION NOTES:

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DEVICE SPECIFICATIONS[1,2,3,4,5,6,7]	50% fill factor bars	
	60W 50FFX1mm TM	100W 50FFX2mm TE
Bar Geometry	50FFx1mm	50FFx2mm
Polarization	TM	TE
Rated Power (W) (at Tj ≤50°C)	60	100
Pulsewidth (µs)	-	-
Duty Cycle (%)	-	-
Fill Factor (%)	50	50
Number of Emitters	49	24
Emitter Width (µm)	100	200
Emitter-to-Emitter Pitch (µm)	200	400
Cavity Length (mm)	1	2
Centroid Wavelength Available[1,8] (nm)	780 to 830	780 to 830
Centroid Wavelength, Standard[1] (nm) (at 25°C)	808 ±3	808 ±3
Spectral Width, Standard[1] (nm)	<3	<3
Wavelength Temperature Coefficient (nm/°C)	0.28	0.28
Fast Axis Divergence (degrees) (FWHM)	31	31
Slow Axis Divergence (degrees) (FWHM)	<10	<10
Threshold Current (A)	12 typical	<25 typical
Operating Current (A)	<62 (54 typical)	<120
Operating Voltage (V)	<2.0	<2.0

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 <=80W CW bars are qualified on a Coherent conduction-cooled package (CCP) 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 >=100W CW bars are qualified on a Coherent water-cooled package (WCP) operated at full power and 25°C. Customers' results may vary as a function of packaging stress, packaging thermal resistance, operating power, and temperature.
4 200W QCW bars are qualified on a Coherent conduction-cooled package (CCP) operated at the indicated nominal conditions and 25°C. Customers' results may vary as a function of packaging stress, packaging thermal resistance, operating power, and temperature.
5 300W and 500W QCW bars are qualified as half-bars on a Coherent conduction-cooled package (CCP) operated at half the rated full-bar power at the indicated nominal conditions and 25°C. Customers' results may vary as a function of packaging stress, packaging thermal resistance, operating power, and temperature.
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- Centroid wavelength and spectral width requirements other than listed here.
- Optical output powers other than listed here.
- Emitter aperture widths other than listed here.
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DEVICE SPECIFICATIONS[1,2,3,4,5,6,7]	200W QCW 90FFX1mm TM	300W QCW 90FFX1.5mm TE
Bar Geometry	90FFx1mm	90FFx1.5mm
Polarization	TM	TE
Rated Power (W QCW) (at Tj ≤50°C)	200	300
Pulsewidth	<1 ms (200 nominal)	≤400 µs (200 nominal)
Duty Cycle (%)	≤20 (2 nominal)	≤10 (7 nominal)
Fill Factor (%)	90	90
Number of Emitters	60	60
Emitter Width (µm)	150	150
Emitter-to-Emitter Pitch (µm)	160	160
Cavity Length (mm)	1.0	1.5
Centroid Wavelength Available[1,8] (nm)	780 to 830	780 to 830
Centroid Wavelength, Standard[1] (nm) (at 25°C)	808 ±3	808 ±3
Spectral Width, Standard[1] (nm)	<3	<3
Wavelength Temperature Coefficient (nm/°C)	0.28	0.28
Fast Axis Divergence (degrees) (FWHM)	31	31
Slow Axis Divergence (degrees) (FWHM)	<10	<10
Threshold Current (A)	22 typical	32 typical
Operating Current (A)	<200 (180 typical)	<280 (270 typical)
Operating Voltage (V)	<2.2	<2.5

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 <=80W CW bars are qualified on a Coherent conduction-cooled package (CCP) 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 >=100W CW bars are qualified on a Coherent water-cooled package (WCP) operated at full power and 25°C. Customers' results may vary as a function of packaging stress, packaging thermal resistance, operating power, and temperature.
4 200W QCW bars are qualified on a Coherent conduction-cooled package (CCP) operated at the indicated nominal conditions and 25°C. Customers' results may vary as a function of packaging stress, packaging thermal resistance, operating power, and temperature.
5 300W and 500W QCW bars are qualified as half-bars on a Coherent conduction-cooled package (CCP) operated at half the rated full-bar power at the indicated nominal conditions and 25°C. Customers' results may vary as a function of packaging stress, packaging thermal resistance, operating power, and temperature.
6 Specifications listed here apply at beginning of life. Operating current at end of life is 120% the operating current at beginning of life.
7 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.
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DEVICE SPECIFICATIONS[1,2,3,4,5,6,7]	500W QCW 80FFX1.5mm TE-PLUS	500W QCW 80FFX2.0mm TE-PLUS
Bar Geometry	80FFx1.5mm	80FFx2.0mm
Polarization	TE	TE
Rated Power (W QCW) (at Tj ≤40°C)	500	500
Pulsewidth	<400 µs (200 nominal)	≤400 µs (200 nominal)
Duty Cycle (%)	≤10 (7 nominal)	≤10 (7 nominal)
Fill Factor (%)	90	90
Number of Emitters	60	60
Emitter Width (µm)	135	135
Emitter-to-Emitter Pitch (µm)	160	160
Cavity Length (mm)	1.5	2.0
Centroid Wavelength Available[1,8] (nm)	780 to 830	780 to 830
Centroid Wavelength, Standard[1] (nm) (at 25°C)	808 ±3	808 ±3
Spectral Width, Standard[1] (nm)	<3	<3
Wavelength Temperature Coefficient (nm/°C)	0.28	0.28
Fast Axis Divergence (degrees) (FWHM)	29	29
Slow Axis Divergence (degrees) (FWHM)	<12	<12
Threshold Current (A)	32 typical	40 typical
Operating Current (A)	<470 (440 typical)	<480 (450 typical)
Operating Voltage (V)	<2.5	<2.5

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 <=80W CW bars are qualified on a Coherent conduction-cooled package (CCP) 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 >=100W CW bars are qualified on a Coherent water-cooled package (WCP) operated at full power and 25°C. Customers' results may vary as a function of packaging stress, packaging thermal resistance, operating power, and temperature.
4 200W QCW bars are qualified on a Coherent conduction-cooled package (CCP) operated at the indicated nominal conditions and 25°C. Customers' results may vary as a function of packaging stress, packaging thermal resistance, operating power, and temperature.
5 300W and 500W QCW bars are qualified as half-bars on a Coherent conduction-cooled package (CCP) operated at half the rated full-bar power at the indicated nominal conditions and 25°C. Customers' results may vary as a function of packaging stress, packaging thermal resistance, operating power, and temperature.
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1) Negative current transients greater than 25 µA and/or reverse voltages >3V can destroy the device.

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Coherent, Inc.,
5100 Patrick Henry Drive Santa Clara, CA 95054
p. (800) 527-3786 | (408) 764-4983
f. (408) 764-4646

tech.sales@coherent.com **www.coherent.com**