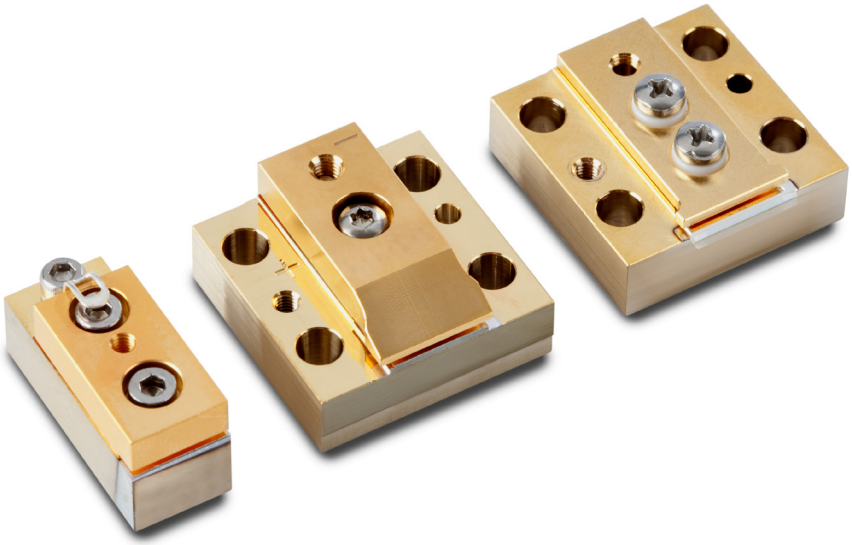
Diode Laser Components

SINGLE BAR DIODE LASER MODULE

808 nm, Conduction-Cooled

Conduction-cooled single bars are well introduced in the market and are an industry standard in terms of size and footprint. At Coherent, these laser bars are available in a very wide range of wavelengths and powers, with optional beam shaping such as fast-axis collimation, both-axis collimation, or even further focused to a defined spot size. Also available are options such as spectral locking and line narrowing, using Volume Bragg Gratings (VBG).



FEATURES

- Industry standard size and footprint
- High reliability and consistency
- Hard solder available for harsh drive conditions
- Low smile
- Optional beam shaping
- Optional spectral locking and line narrowing
- Narrow heat sink variant available for side-by-side placement
- Variants with different beam height on request

APPLICATIONS

- Pumping of solid-state lasers
- Materials processing and annealing
- Medical
- Graphic arts

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Device specification

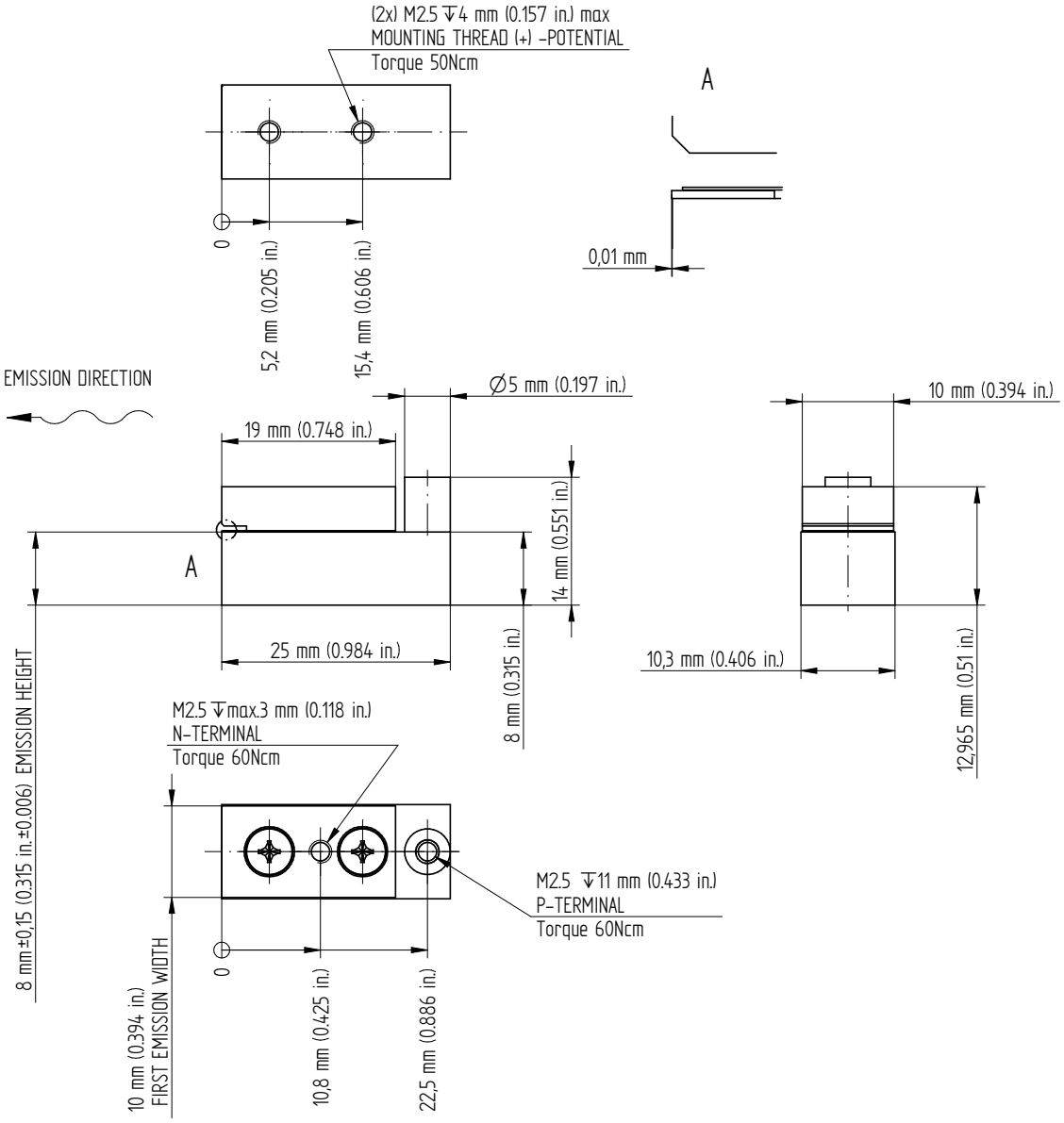
Optical Parameters[1]	M-Type					
Center Wavelength Range[3] (nm)	808			808		
Center Wavelength Tolerance[3] (nm)	±3			±3		
Output Power[2] (W)	40	50	60	150	200	280
Number of Emitters	19			47	62	40
Emitter Size (µm)	150	100	150	100	100	100
Fill Factor (%)	30	20	30	50	75	80
Operating Condition	CW			QCW		
Spectral Width (FWHM) (nm)	≤3			≤5		
Slope Efficiency (W/A)	≥1.15	≥1.16	≥1.14	≥1.20	≥1.18	≥1.25
Fast-Axis Divergence without Optics (degree)	≤63			≤65		
Fast-Axis Divergence with Fast-Axis Collimation (mrad)	≤8			≤8		
Slow-Axis Divergence (degree)	≤10	≤7.5	≤8	≤9	≤12	≤12
Wavelength Temp. Coefficient (nm/°C)	~0.27			~0.27		
Beam Geometry after FAC Lens (mm x mm)	~0.8 x 10			~0.8 x 10		
Electrical Parameters[1]						
Power Conversion Efficiency (%)	≥52	≥53	≥53	≥57	≥53	≥60
Threshold Current (I_{TH}) (A)	≤8	≤9	≤12	≤20	≤28	≤30
Operating Current (I_{OP}) (A)	≤46	≤52	≤67	≤150	≤190	≤250
Operating Voltage (V_{OP}) (V)	≤1.90	≤1.80	≤1.80	≤1.90	≤2.0	≤2.0
Duty Cycle[5] (%)	100			≤2		
Pulse Length[5] (µsec)	-			≤500		
Thermal Parameters[1]						
Operating Temperature Range[3,4] (°C)	+20 to +30			+20 to +30		
Storage Temperature Range[4] (°C)	0 to +55			0 to +55		
Recommended Heat Sink Capacity (W)	≥70			≥20		

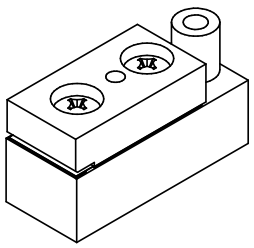
Notes:
1. Data at 25°C cold plate temperature.
2. Reduced lifetime if used above nominal operating conditions.
3. Others available upon request.
4. A non-condensing environment is required for storage and operation below the ambient dew point.
5. Custom pulse length / duty cycles on request.

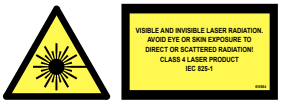
Mechanical specifications

Conduction-Cooled, CW
M-Type Single Bar Diode Laser Module

M8N



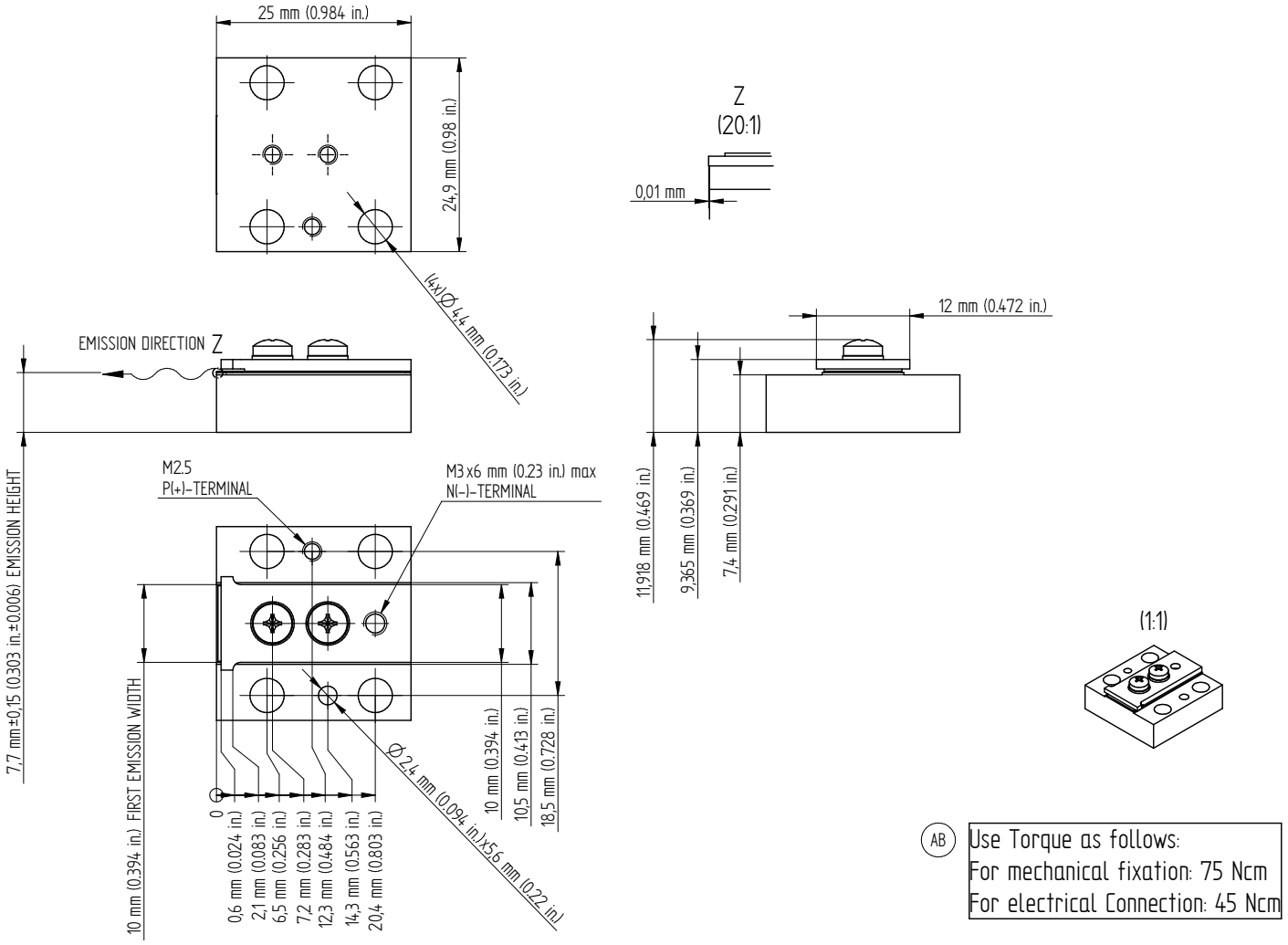




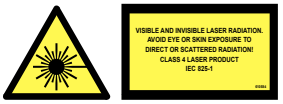
Mechanical specifications

Conduction-Cooled, CW
M-Type Single Bar Diode Laser Module

M3N



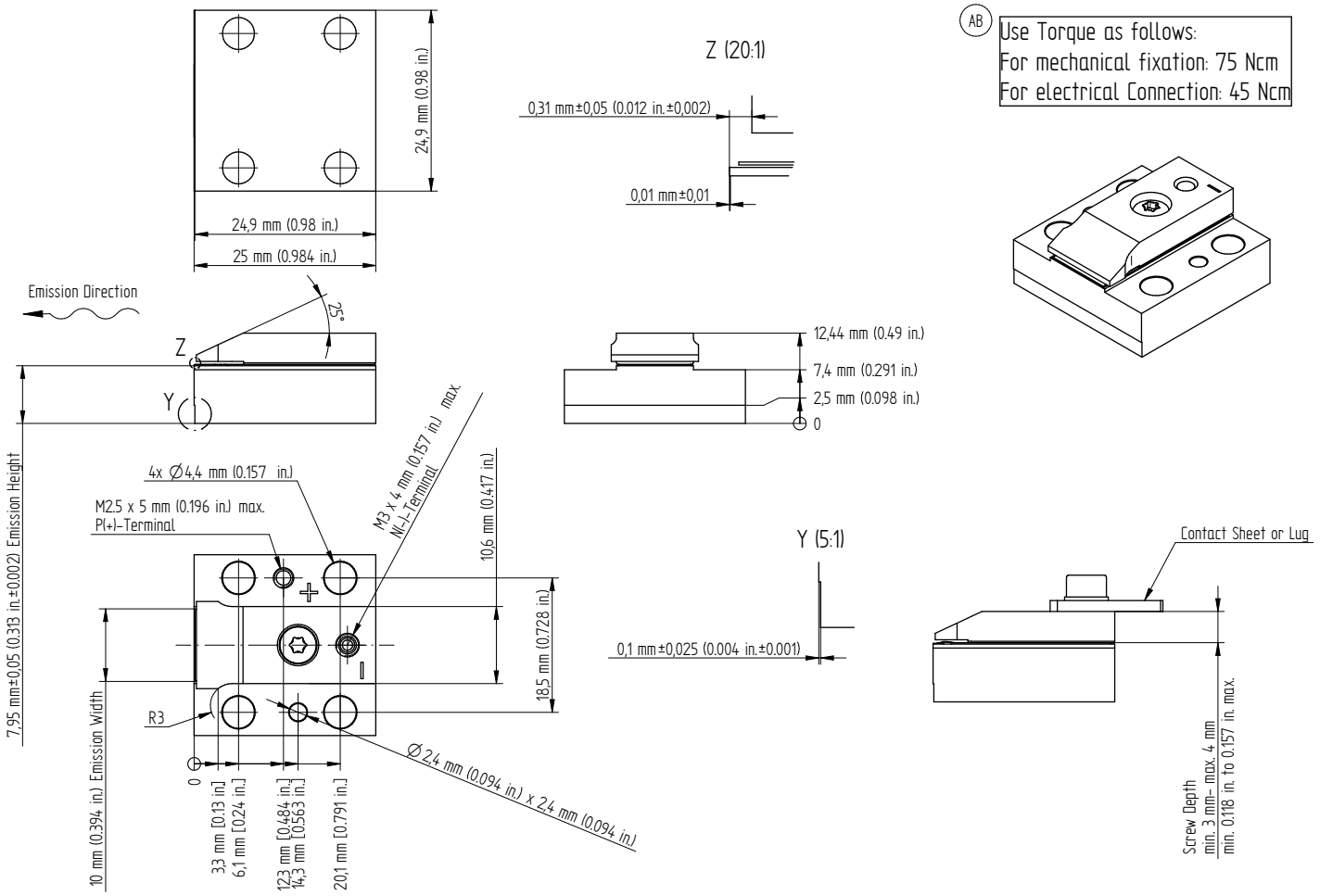
(AB) Use Torque as follows:
For mechanical fixation: 75 Ncm
For electrical Connection: 45 Ncm

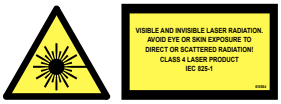


Mechanical specifications

Conduction-Cooled, CW
M-Type Single Bar Diode Laser Module

M10N





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