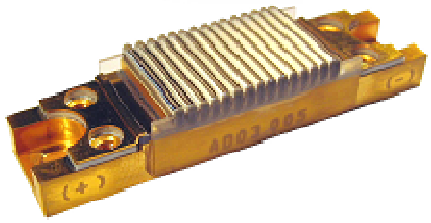
QCW Stacked Array with 'Fast Axis Collimation'

QD-Q1yzz-BO / QD-Q1yzz-BSO / QD-Q1yzz-BSSO

DESCRIPTION



QD-Q1yzz-BO, QD-Q1yzz-BSO, and QD-Q1yzz-BSSO are a variety of conductively cooled laser diode stacked arrays designed with a 'Fast Axis Collimation' (FAC) lens accurately fixed on each diode bar. The fast axis divergence is reduced to a very low value (8mrad @ $1/e^2$).
These Stacks can be built from 1 to 17 diode bars with up to 400W QCW per bar. Minimum bar pitch is 400 µm.
The quality of the collimated beam is convenient for association with appropriate optical systems for application which request very high optical beam density.
The laser diode arrays benefit from a fully mastered technology, with appropriate design for improved efficiency and reliability, operating from -40°C up to 75 °C.
Assembly in a compact and rugged package allows easy connection which is ideal for different applications: pumping rods or slabs solid state lasers, illuminators...

MAIN FEATURES

- QCW operation
- Low divergence 'Fast Axis Collimation'
- Up to 400W QCW per diode bar (500W with short pulse width)
- Wavelengths: 808nm, 9xxnm
- High efficiency, low thermal resistance assembly
- Mechanically robust, shock and vibration qualified

x =	1	2	3	4	5	6			
λ	808	790	830	915	940	980			nm
y =	2	3	4	5	6	7	8	9	
P/bar	60	80	100	125	150	200	300	400	W

SPECIFICATIONS

PARAMETERS @ 25°C		**QD-Qxyzz-BO**	**QD-Qxyzz-BSO**	**QD-Qxyzz-BSSO**	**Units**
Number of Diode bars	**zz** =	Up to 11	Up to 19	Up to 25	
Pitch between diode bars		400 to 2000			µm
Emitting area		10 x (zz – 1)* pitch			mm^2
QCW Optical Power per Diode Bar		up to 400			W
QCW Optical Power		up to 4 400	up to 7 000	up to 10 000	W
Operating current	@ 100W / bar	95 A Typical - 115A Max			A
Operating current	@ 200W / bar	185 A Typical - 215A Max			A
Operating current	@ 400W / bar	370 A Typical - 390A Max			A
Operating voltage		<2V / bar			V
Total efficiency		58% @ 808 nm, 65% @ 940/980 nm			%
Wavelength ('**n**' = number of different λ)		790 to 980			nm
Beam divergence per bar (@ $1/e^2$)	Slow axis Fast axis	0 Typ. (≤ 10) 8 Typ. (≤ 10) upon the pitch			deg. mrad
Beam pointing (bar to bar)		± 3 Typ. (≤ ± 4)			mrad

Note :

- Standard Polarisation: TM or TE mode @ 808 nm, TE @ 9xx nm
- Tolerance on wavelength is +/- 3nm, +/- 1,5 nm on demand
- Variation of wavelength with temperature ~0.26/nm/°C
- Specifications are for nominal lifetime > 1. 10^9 pulses @ 25°C (for 200µs pulse width)

Quantel Laser Diodes reserves the right to change specifications without prior notice

ABSOLUTE MAXIMUM RATINGS

PARAMETERS		QD-Q1yzz-BO	QD-Q1yzz-BSO	QD-Q1yzz-BSSO	Units
Pulse width		1000			µs
Maximum duty cycle (pitch of 1200µm	@ 100W / bar	20	15	10	%
	@ 150W / bar	15	10	6	%
	@ 200W / bar	10	6	4	%
Reverse voltage		3			V
Operating temperature		-40 to +60			℃
Storage temperature		-45 to +75			℃

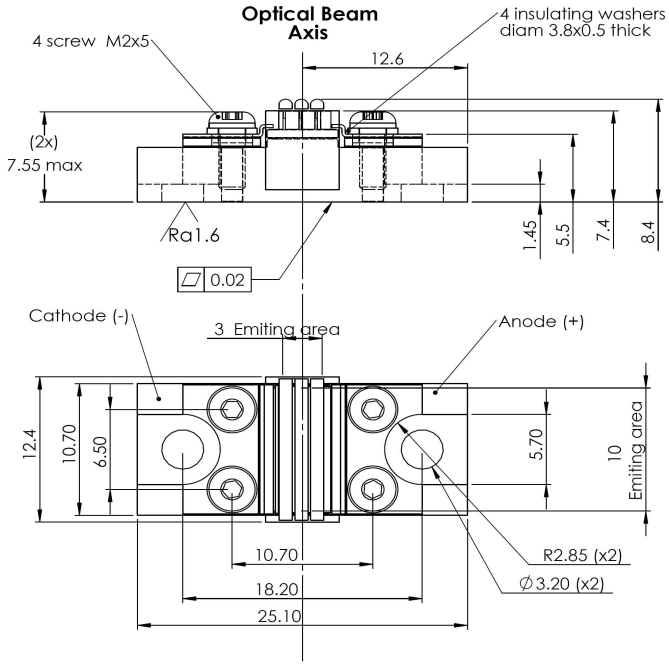
Note : Operation at temperature below dew point requests to use dry N2 environment

PACKAGE SPECIFICATIONS (other types on demand)

- **dimensions are in mm**
- **standard tolerances are ± 0.2 mm**

QD-Q1yzz-BO

This stack “BO” type can be proposed with a total number ‘zz’ of diode bars:
-Up to 11 at a pitch of 400µm
-Up to 3 at a pitch of 1200µm



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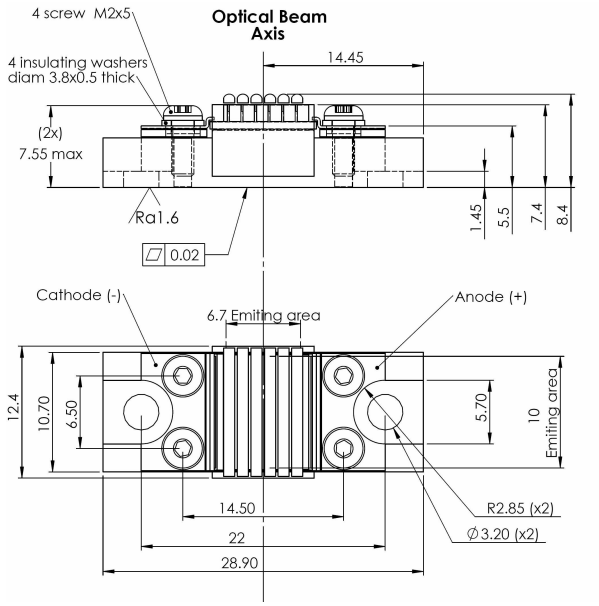
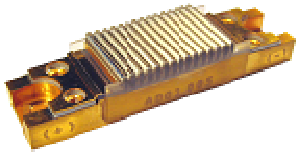
QD-Q1yzz-BSO

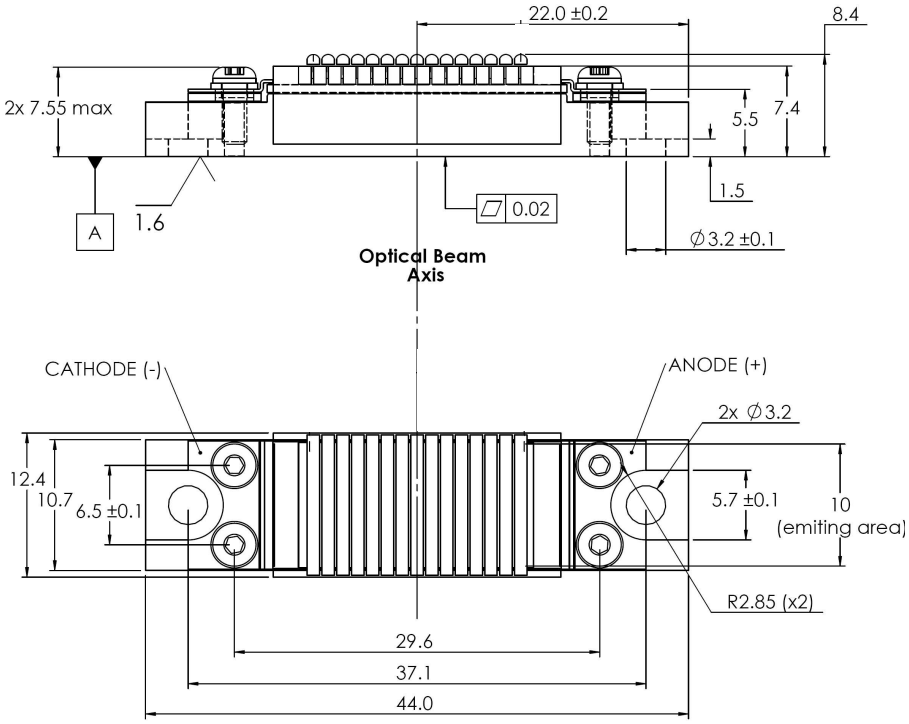
This stack “BSO” type can be proposed with a total number ‘zz’ of diode bars:
Up to 19 at a pitch of 400 µm
Up to 6 at a pitch of 1200µm



QD-Q1yzz-BSSO



This stack “BSSO” type can be proposed with a total number ‘zz’ of diode bars:
Up to 25 at a pitch of 400 µm
Up to 17 at a pitch of 1200µm



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