

300W to 2kW QUASI-CW STACKED ARRAYS

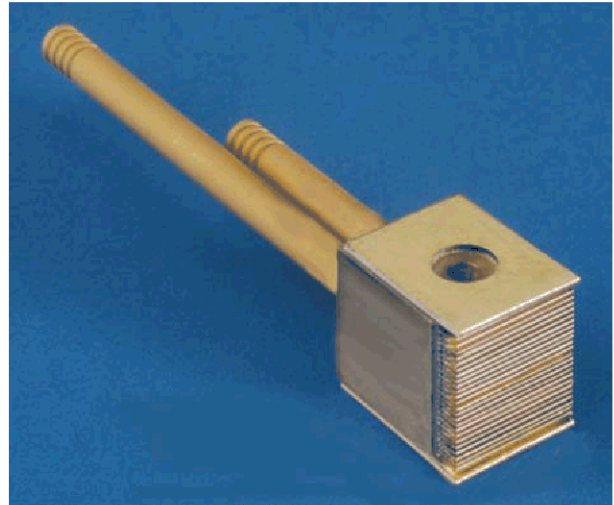
DESCRIPTION

The TH-Q12xx-C and TH-Q13xx-C series are high optical power laser diodes stacks assembled on a liquid cooled heatsink.

These stacks are based upon highly efficient 1cm linear bar arrays. According to the number of assembled bars "xx", a large range of optical power is available from 300W QCW to 2kW QCW.

Low thermal impedance liquid cooled package allows easy control of the wavelength. So the TH-Q12xx-C and TH-Q13xx-C stacks are convenient for different applications : pumping rod or slab solid state lasers, illuminators...

A compact and rugged package assembly allows easy connection.



MAIN FEATURES

- 795nm to 860nm
- Liquid cooled package
- High conversion efficiency
- Very high temperature stability of operation
- Mechanically robust, shock and vibration resistant
- Highly reproducible MOCVD process

SPECIFICATIONS

Products are designed with 5 to 25 linear bar arrays

Characteristics shown in the following table are respectively for 10 bars (TH-Q1210-C or TH-Q1310-C) and 25 bars (TH-Q1225-C or TH-Q1325-C).

Fluid temperature : 25° C

Quasi-continuous mode : pulse width = 200µs
repetition rate = 100Hz
duty cycle = 2%

PARAMETERS	TH-Q1210-C	TH-Q1225-C	TH-Q1310-C	TH-Q1325-C	UNITS
QCW output power	600	1500	800	2000	Watt
Energy per pulse	120	300	160	600	mJ
Emitting area	10 x 3.6	10 x 9.6	10 x 3.6	10 x 9.6	mm x mm
Threshold current	typical max.	14 18	14 18	14 18	Amp.
Operating current,	typical max.	65 70	65 70	86 94	Amp.
Operating voltage	<19	<48	<20	<50	Volt
Total efficiency,	typical min.	50 44	49 44	51 44	%
$\Delta I_f / (I_f \Delta T)^1$	0.4	0.4	0.4	0.4	%/K
$\Delta \lambda / \Delta T$	0.26	0.26	0.26	0.26	nm/K
Beam divergence	10 x 40	10 x 40	10 x 40	10 x 40	degree

¹ Variation of operating current with temperature

Note :

- Standard wavelength is centered on 808nm
- Other Duty Cycle configuration available upon request
- Spectral width is ≤ 3.5 nm FWHM (≤ 3 nm upon request)

- Tolerance on wavelength is +/- 4nm (+/- 3nm upon request)
- Specifications are for nominal lifetime 10⁹ pulses (for 200µs pulse width)

ABSOLUTE MAXIMUM RATINGS

PARAMETERS	TH-Q1210-C	TH-Q1225-C	TH-Q1310-C	TH-Q1325-C	UNITS
QCW output power	630	1570	840	2100	Watt
Pulse width	400	400	300	300	µs
Reverse voltage	3	3	3	3	Volt
Operating temperature	+5 to +60	+5 to +60	+5 to +60	+5 to +60	°C
Storage temperature	-40 to +85	-40 to +85	-40 to +85	-40 to +85	°C

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

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