HAMAMATSU

PRELIMINARY DATA

HIGH POWER QUASI-CW LASER DIODE L8411

High power Quasi-CW operation

■ FEATURES

- High optical power : 50 to 100 W/bar
- High stability
- Long life
- High cost performance

■ APPLICATIONS

- Pumping source for solid state lasers
- Materials processing
- Welding
- Soldering
- Medical systems

Our high power Quasi-CW laser diode, L8411, features several advantages such as high stability with long life, high cost performance with compact structure, and higher peak intensity. It can be applied as light source to pump solid state lasers, for material processing like welding or soldering, and for medical systems. The lasing areas consist of small laser emitters arranged in line and are thus called Bar structure. A high Quasi-CW output power as high as 1kW at peak was achieved by stacking ten Bars. Cooling methods can be selected from Peltier-cooling, water-cooling and Funryu-cooling (patent pending : Japan 8-139479, WO 00/11717). A high power laser module with a focusing lens and a driving electronics are optionally available.

■ ABSOLUTE MAXIMUM RATINGS (Each bar)

Parameter	Symbol	Low Duty Ratio Type	High Duty Ratio Type	Unit
Radiant Output Power / bar	ϕ_e	105	55	W
Reverse Voltage	V_R	2.0	2.0	V
Pulse Duration	Tw	200	200	μsec
Duty Ratio	D_R	1	20	%
Operating Temperature	T_{op}	+15 to +35		˚C
Storage Temperature	T_{stg}	-20 to +40		˚C

■ CHARACTERISTICS (Each bar, Ta=20˚C)

Parameter	Symbol	Low Duty Ratio Type		High Duty Ratio Type		Unit
		Conditions	Value	Conditions	Value	
Radiant Output Power / bar	ϕ_e		100		50	W
Forward Current	I_F	ϕ_e=100W	120	ϕ_e=50W	80	A
Peak Emission Wavelength	λ_p	ϕ_e=100W	808	ϕ_e=50W	808	nm
Spectral Radiation Half Bandwidth	$\Delta\lambda$	ϕ_e=100W	4	ϕ_e=50W	5	nm
Forward Voltage	V_F	ϕ_e=100W	2.0	ϕ_e=50W	1.9	V
Beam Spread Angle : Parallel	θ//	FWHM	10	FWHM	10	˚ (degree)
: Vertical	$\theta\perp$		35		35	˚ (degree)
Lasing Threshold Current	Ith		25		20	A
Array Length	-		10		10	mm
Maximum Number of Stacks	-		25		6	stack

*Contact sales stuff for emitting wave-length and radiant output power (ϕ_e) other than above.

HIGH POWER QUASI-CW LASER DIODE L8411

Figure 1: Radiant Output Power vs. Forward Current
Low Duty Ratio Type (Typ.)

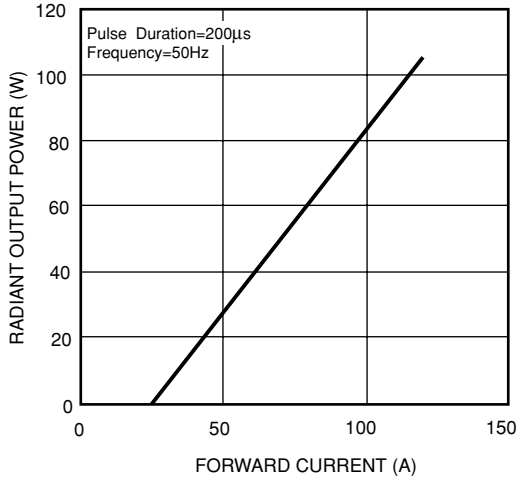


Figure 2: Radiant Output Power vs. Forward Current
High Duty Ratio Type (Typ.)

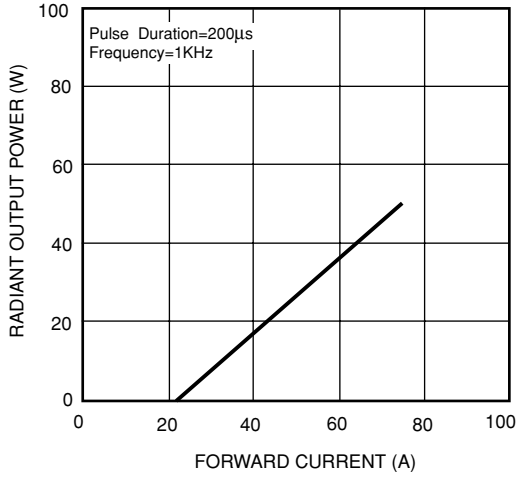


Figure 3: Typical Emission Spectrum

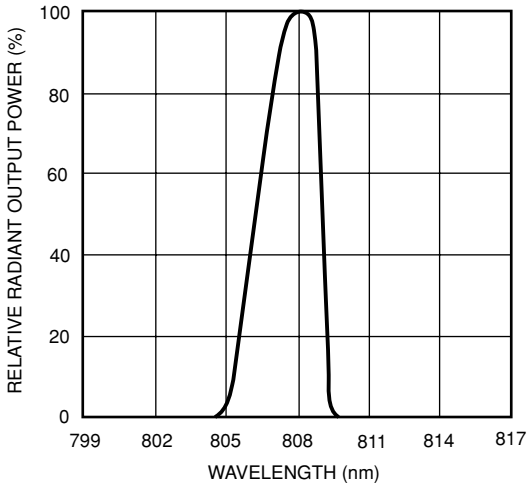


Figure 4: Relationship Between Total Optical Output Power and Duty Ratio

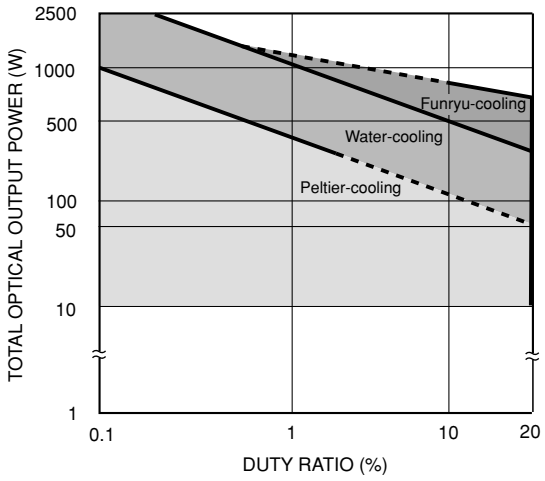
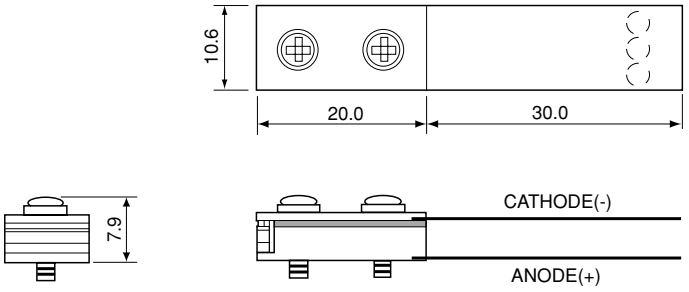
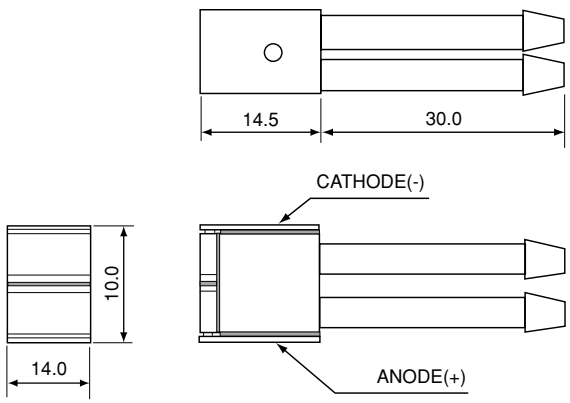


Figure 5: Dimensional Outline (Unit : mm)

Low Duty Ratio Type (Peltier-cooling)



High Duty Ratio Type (Water-cooling)



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