

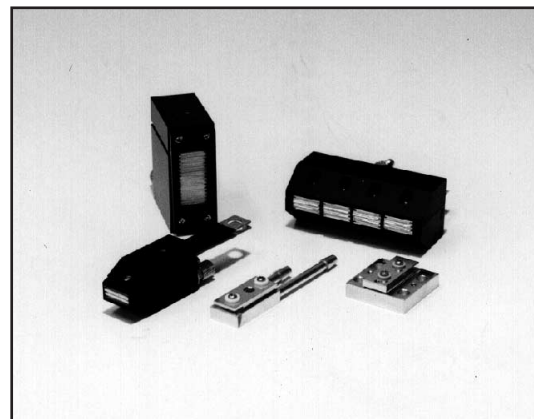
High power Quasi-CW operation

■ FEATURES

- High optical power : 50 to 100W/bar in average
- 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 10kW 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	T_w	200	200	μsec
Duty Ratio	DR	1	20	%
Operating Temperature	T_{op}	+15 to +35		$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-20 to +40		$^{\circ}\text{C}$

■ CHARACTERISTICS (Each bar, $T_a=20^{\circ}\text{C}$)

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	$\phi_e=100\text{W}$	120	$\phi_e=50\text{W}$	80	A
Peak Emission Wavelength	λ_p	$\phi_e=100\text{W}$	808	$\phi_e=50\text{W}$	808	nm
Spectral Radiation Half Bandwidth	$\Delta\lambda$	$\phi_e=100\text{W}$	4	$\phi_e=50\text{W}$	5	nm
Forward Voltage	V_F	$\phi_e=100\text{W}$	2.0	$\phi_e=50\text{W}$	1.9	V
Beam Spread Angle : Parallel	$\theta_{//}$	FWHM	10	FWHM	10	$^{\circ}$ (degree)
: Vertical	$\theta_{\perp}$		35		35	$^{\circ}$ (degree)
Lasing Threshold Current	I_{th}		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.)

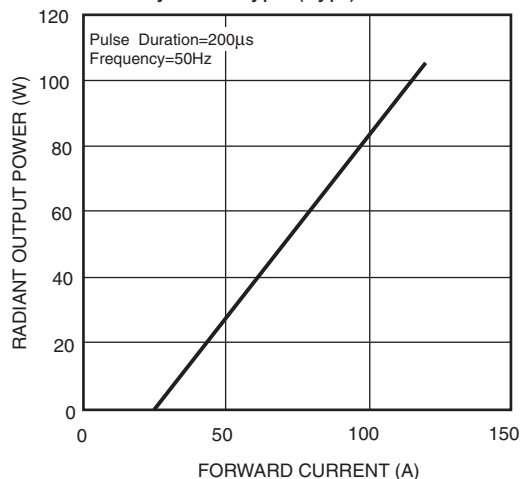


Figure 2: Radiant Output Power vs. Forward Current
High Duty Ratio Type (Typ.)

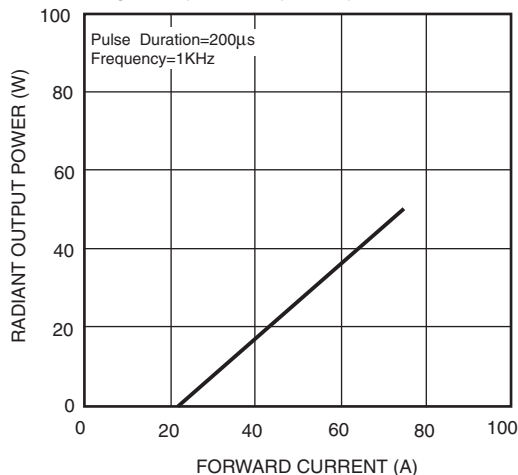


Figure 3: Typical Emission Spectrum

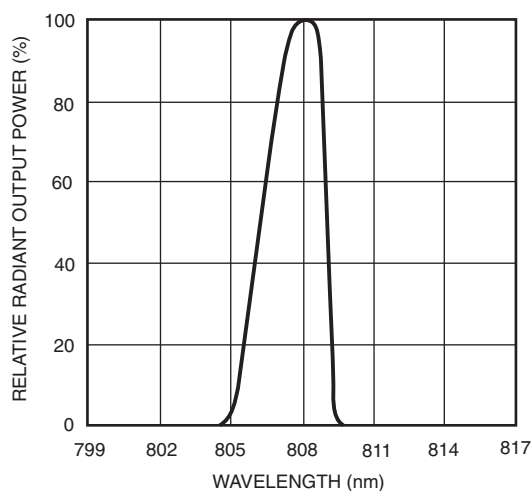


Figure 4: Relationship Between Total Optical Output Power and Duty Ratio

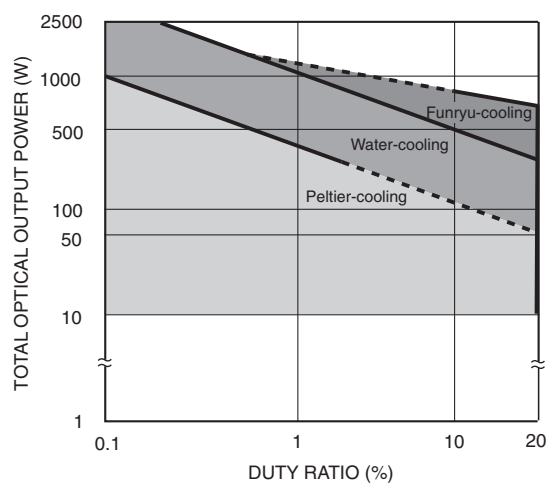
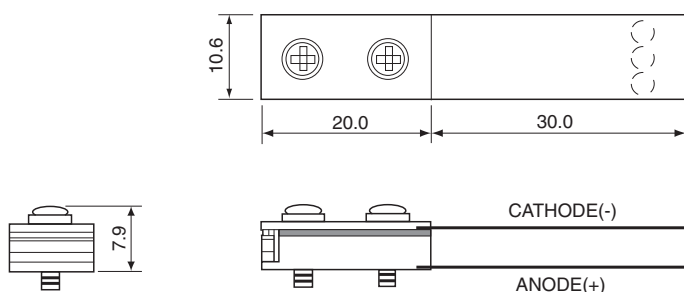
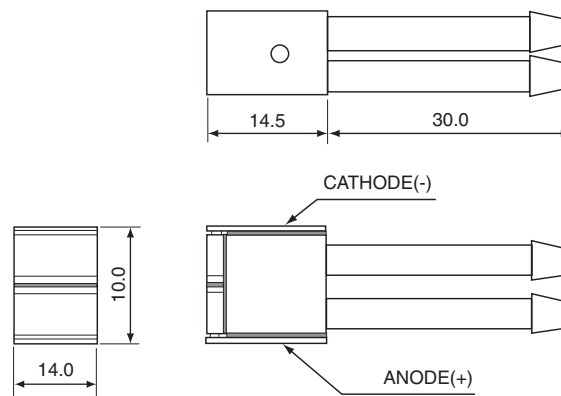


Figure 5: Dimensional Outline (Unit : mm)

Low Duty Ratio Type (Peltier-cooling)



High Duty Ratio Type (Water-cooling)



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Cat. No. LLD1008E01

OCT. 2000 SI

Printed in Japan (200)