

High Power Laser Diode for MAX. X48 Speed CD-R Drive(784nm-Pulse 225mW)

■ Outline Dimensions

- (Unit : mm)

The technical drawing illustrates the geometry and dimensions of a laser diode assembly. The top view shows a circular component with concentric circles representing the laser chip, cap glass, and reference plane. Key dimensions include a diameter of $\phi 2.0$ for the cap glass, a diameter of $\phi 5.6^{+0}_{-0.025}$ for the reference plane, and a diameter of $\phi 1.0$ MIN. for the laser chip. The side view shows the assembly with a laser chip, cap glass, and reference plane. Dimensions include a height of 0.5 MIN. for the laser chip, a height of 0.25 ± 0.03 for the cap glass, and a height of 1.2 ± 0.1 for the reference plane. The bottom view shows the laser chip with a diameter of $\phi 1.2$ MAX. and a height of 0.5 MAX. The enlarged view of the emission point shows the center of the virtual circle that runs 3 points on the stem periphery, with dimensions 0 ± 0.08 for the X and Y coordinates.

Terminal connection

The diagram shows a laser diode symbol with three terminals. Terminal 1 is connected to the laser chip. Terminal 2 is connected to the laser chip. Terminal 3 is connected to the laser chip. The symbol is labeled "Laser diode" and "Non connection".

Enlarged view of emission point

The diagram shows the emission point of the laser diode. The emission point is located at the center of the virtual circle that runs 3 points on the stem periphery. The dimensions are 0 ± 0.08 for the X and Y coordinates.

(T_C=25°C ※1)

Parameter		Symbol	Rating	Unit
※3	Optical power output	P _O	120	mW
※2	Optical power output (pulse)	P _p	225	mW
	Reverse voltage	V _{rl}	2	V
※1	Operating temperature	※3 CW T _{opc(c)}	-10 to +65	°C
		※2 Pulse T _{opp(c)}	-10 to +75	°C
	Storage temperature	T _{stg}	-40 to +85	°C
※4	Soldering temperature	T _{sld}	300	°C

※1 Case temperature	※4 At the position of 1.6mm or more from the lead base (Within 3s)
※2 Pulse width : 0.1μs, Duty : 50%	
※3 CW (Continuous Wave) drive	

■ Electro-optical Characteristics※1					(Tc=25℃)		
Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Threshold current		I _{th}	—	-	30	40	mA
Operating current		I _{op}	Po=100mW	-	141	167	mA
Operating voltage		V _{op}		-	2.1	2.5	V
Wavelength		λ _p		780	784	787	nm
Half intensity angle	※2※3 Parallel	θ//		7.8	8.7	9.8	°
	※2※3 Perpendicular	θ⊥		14.5	16	17.5	°
※4 Ripple		R _i		-20	-	+20	%
Misalignment angle	※3 Parallel	Δθ//		-1.5	-	+1.5	°
	※3 Perpendicular	Δθ⊥		-2.5	-	+2.5	°
Differential efficiency		η _d	$\frac{70\text{mW}}{\text{I}(100\text{mW})-\text{I}(30\text{mW})}$	0.8	1.0	1.3	mW/mA
Interference pattern intensity		α	Po=100mW	-	-	1	-
※5 Kink		K-LI	P1=45mW, P2=135mW, P3=225mW	-	-	10	%
Polarization ratio		P _i	Po=3mW, NA=0.13	20	-	-	-

^{※1} Initial value, CW (Continuous Wave) drive

^{※2} Angle at 50% peak intensity (full-width at half-maximum)

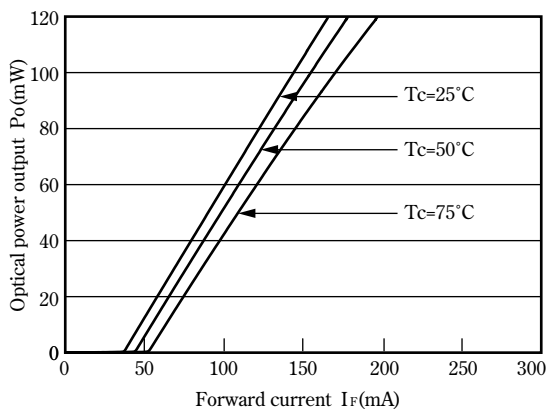
^{※3} Parallel to the junction plane (X-Z plane)
Perpendicular to the junction plane (Y-Z plane)

^{※4} R=ΔP/P ΔP : the maximum deviation of the far field pattern from its approximate curve P : the peak of the approximate curve

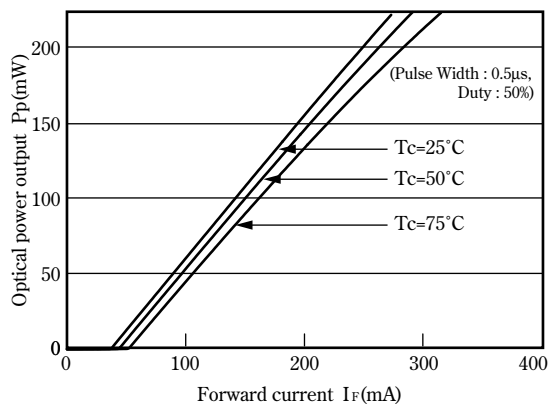
^{※5} Pulse drive (Pulse width : 0.1μs, Duty : 50%)

• Please refer to the chapter "Handling Precautions"

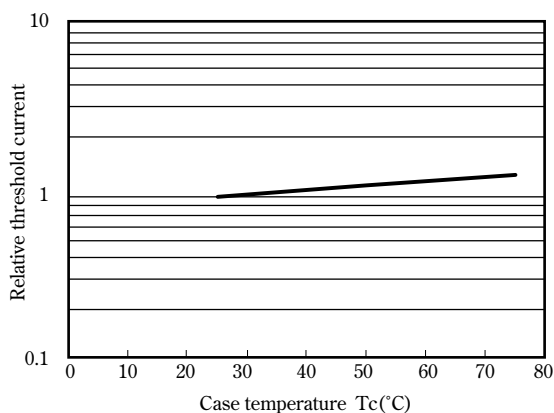
Optical power output - Forward current [CW]



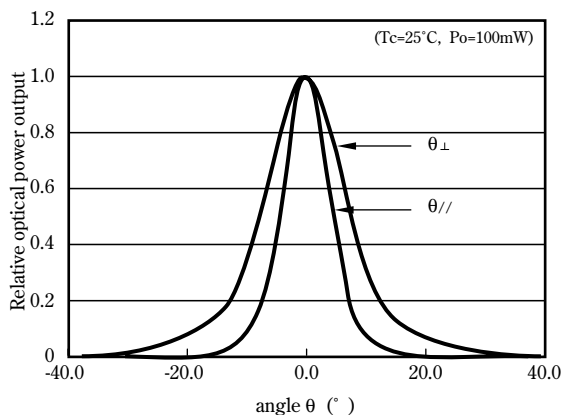
Optical power output - Forward current [Pulse]



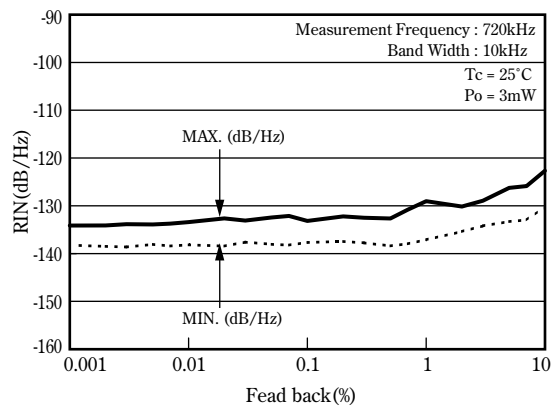
Case temperature dependence of threshold current [CW]



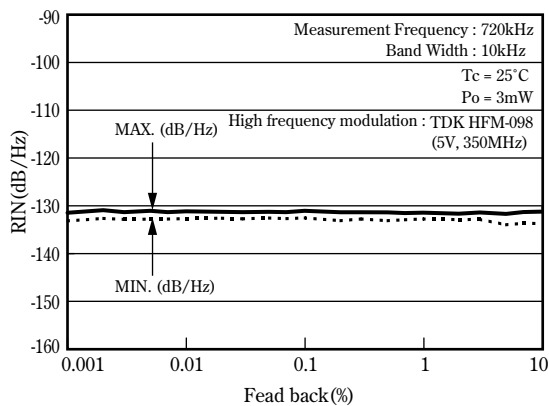
Far field pattern



Relative intensity noise (RIN) [without high frequency modulation]

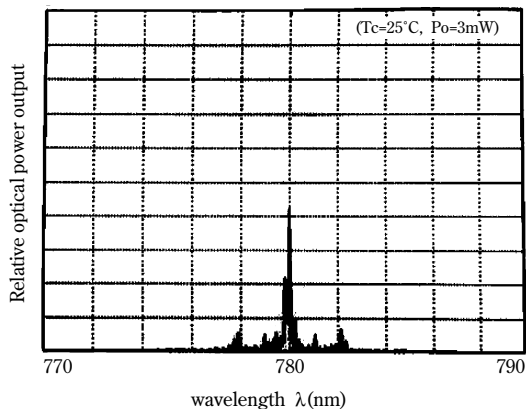


Relative intensity noise (RIN) [with high frequency modulation]

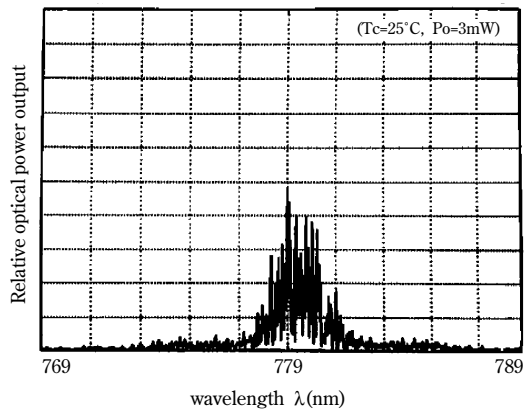


Note) Characteristics shown in diagrams are typical values. (not assurance value)

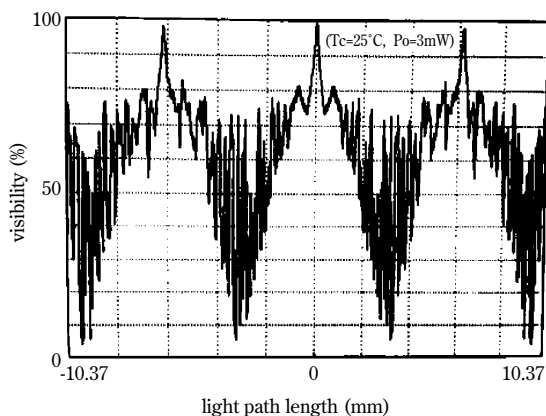
Lasing spectrum [without high frequency modulation]



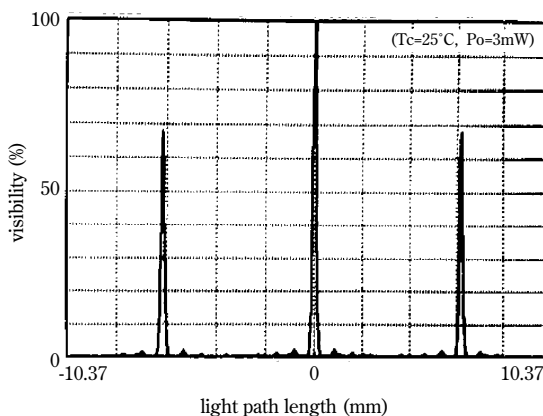
Lasing spectrum [with high frequency modulation]



Visibility [without high frequency modulation]



Visibility [with high frequency modulation]



Note) Characteristics shown in diagrams are typical values. (not assurance value)

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