GH0781RA2C

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

■ Features

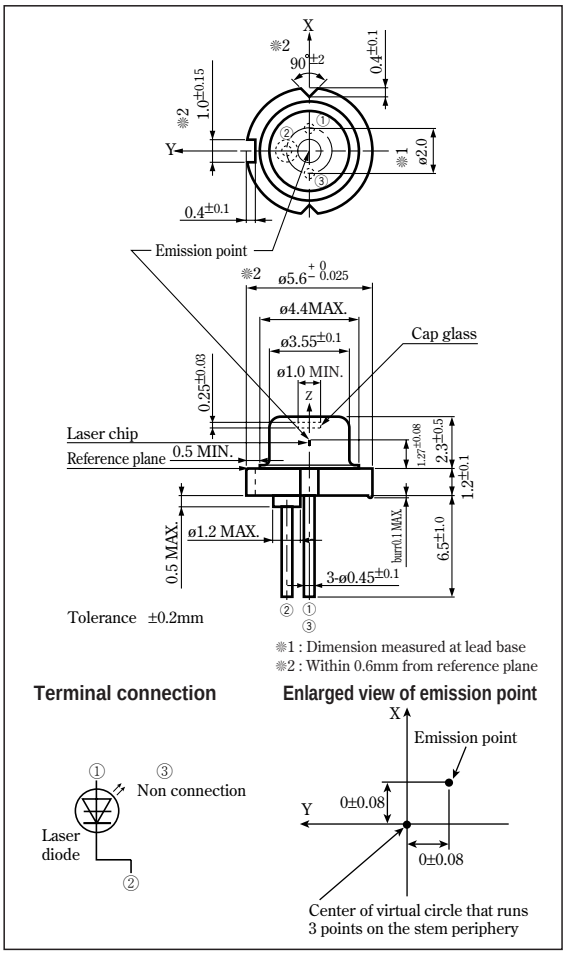
(1) Maximum optical power output : 120mW (CW)
(2) High power (pulse MAX. 225mW), MAX. ×48 speed writing
(3) High coupling efficiency.
The ellipticity (θ⊥/θ//) is close to 1.
(4) Wavelength : TYP. 784nm
(5) ϕ5.6mm package

■ Applications

(1) CD-R drives
(2) CD-RW drives

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

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

■ Electro-optical Characteristics※1

(Tc=25˚C)

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_l		-20	-	+20	%
Misalignment angle	※3 Parallel	Δθ//		-1.5	-	+1.5	˚
	※3 Perpendicular	Δθ⊥		-2.5	-	+2.5	˚
Differential efficiency		η_d	$\frac{70mW}{I(100mW)-I(30mW)}$	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_l	Po=3mW, NA=0.13	20	-	-	-

※1 Initial value, CW (Continuous Wave) drive

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

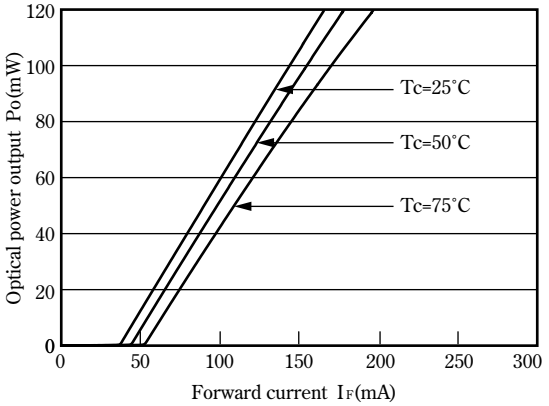
※3 Parallel to the junction plane (X-Z plane)
Perpendicular to the junction plane (Y-Z plane)

※4 $R_l=\Delta P/P$ ΔP : the maximum deviation of the far field pattern from its approximate curve P : the peak of the approximate curve

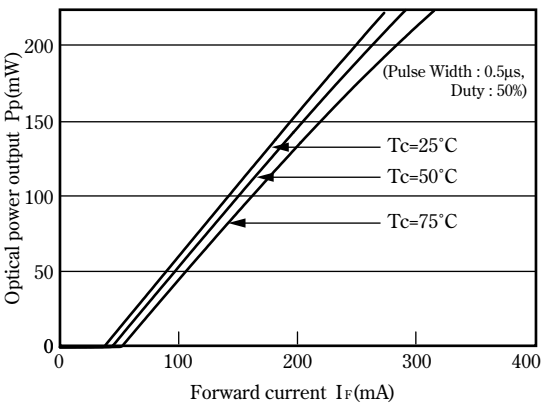
※5 Pulse drive (Pulse width : 0.1μs, Duty : 50%)

• Please refer to the chapter "Handling Precautions"

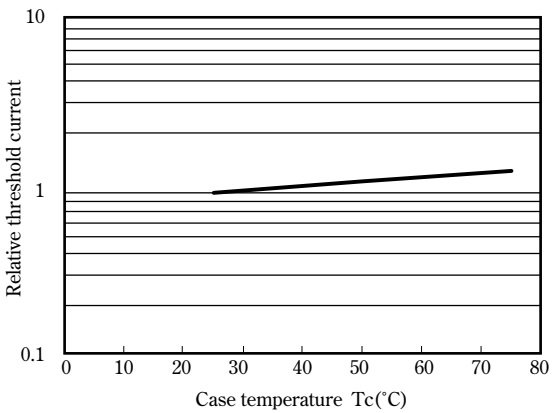
Optical power output - Forward current [CW]



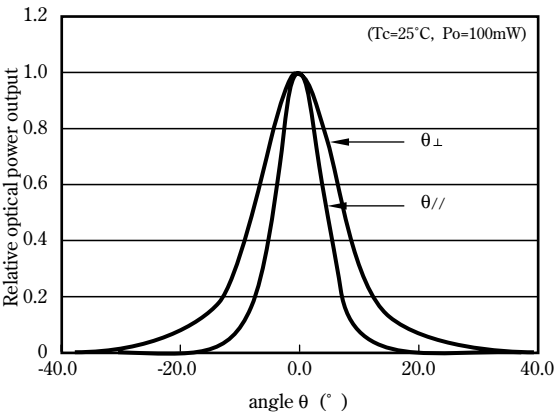
Optical power output - Forward current [Pulse]



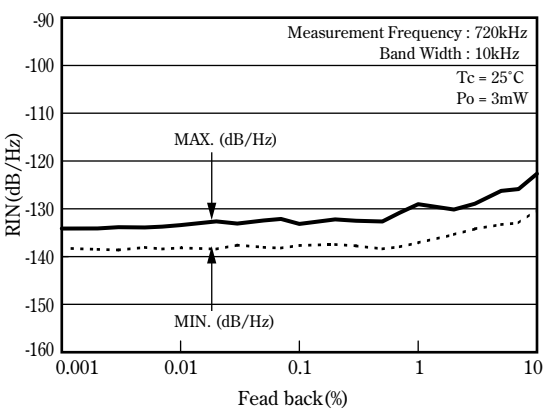
Case temperature dependence of threshold current [CW]



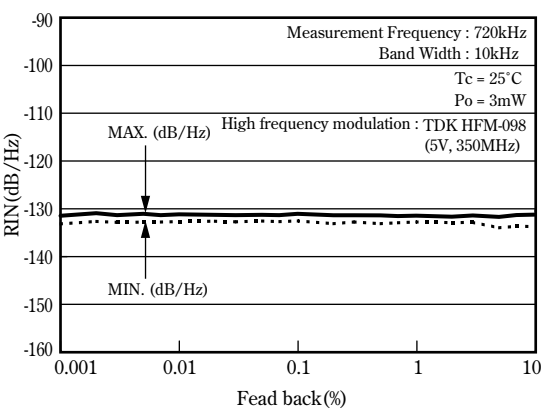
Far field pattern



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

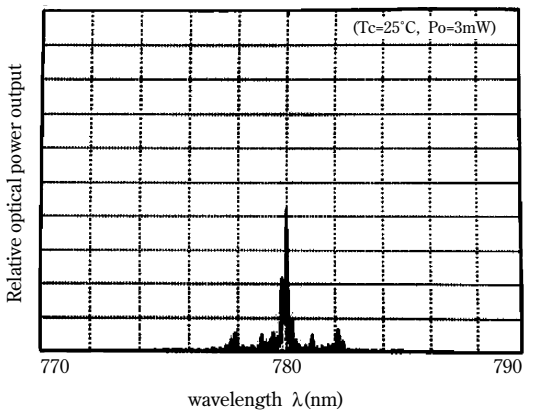


Relative intensity noise (RIN) [with high frequency modulation]

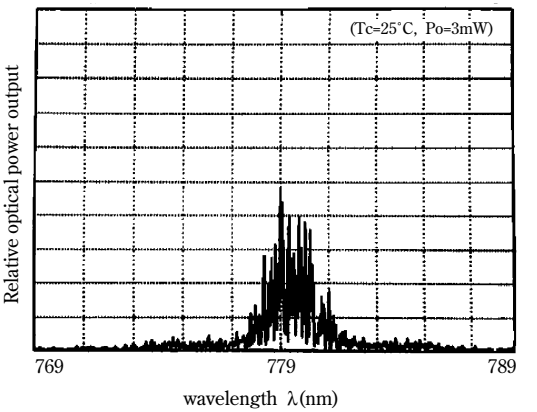


Note) Characteristics shown in diagrams are typical values. (not assurance value)

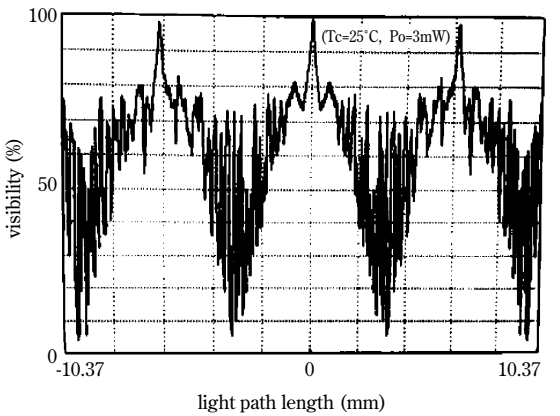
Lasing spectrum [without high frequency modulation]



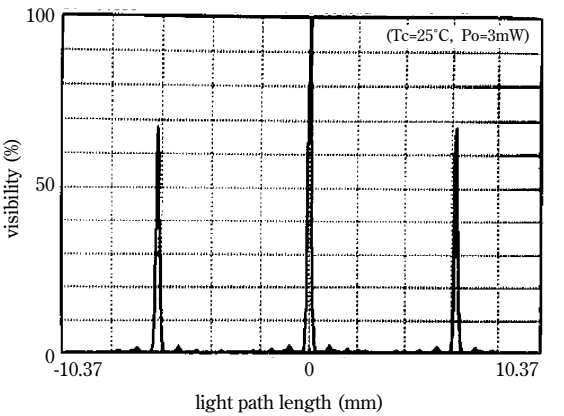
Lasing spectrum [with high frequency modulation]



Visibility [without high frequency modulation]



Visibility [with high frequency modulation]



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

NOTICE

- The circuit application examples in this publication are provided to explain representative applications of SHARP devices and are not intended to guarantee any circuit design or license any intellectual property rights. SHARP takes no responsibility for any problems related to any intellectual property right of a third party resulting from the use of SHARP's devices.
- Contact SHARP in order to obtain the latest device specification sheets before using any SHARP device. SHARP reserves the right to make changes in the specifications, characteristics, data, materials, structure, and other contents described herein at any time without notice in order to improve design or reliability. Manufacturing locations are also subject to change without notice.
- Observe the following points when using any devices in this publication. SHARP takes no responsibility for damage caused by improper use of the devices which does not meet the conditions and absolute maximum ratings to be used specified in the relevant specification sheet nor meet the following conditions:

  (i) The devices in this publication are designed for use in general electronic equipment designs such as:
  - Personal computers
  - Office automation equipment
  - Telecommunication equipment [terminal]
  - Test and measurement equipment
  - Industrial control
  - Audio visual equipment
  - Consumer electronics

  (ii) Measures such as fail-safe function and redundant design should be taken to ensure reliability and safety when SHARP devices are used for or in connection with equipment that requires higher reliability such as:
  - Transportation control and safety equipment (i.e., aircraft, trains, automobiles, etc.)
  - Traffic signals
  - Gas leakage sensor breakers
  - Alarm equipment
  - Various safety devices, etc.

  (iii) SHARP devices shall not be used for or in connection with equipment that requires an extremely high level of reliability and safety such as:
  - Space applications
  - Telecommunication equipment [trunk lines]
  - Nuclear power control equipment
  - Medical and other life support equipment (e.g., scuba).
- Contact a SHARP representative in advance when intending to use SHARP devices for any "specific" applications other than those recommended by SHARP or when it is unclear which category mentioned above controls the intended use.
- If the SHARP devices listed in this publication fall within the scope of strategic products described in the Foreign Exchange and Foreign Trade Law of Japan, it is necessary to obtain approval to export such SHARP devices.
-
- Contact and consult with a SHARP representative if there are any questions about the contents of this publication.