

LT0H49L/T

Compact Hologram Laser

Compact Hologram Laser(3-beam) for 16X Speed CD-ROM Drive

■ Features

- (1) Built-in high speed(TYP.30MHz) OPIC* for 16X speed CD-ROM drive
- (2) Enables to design compact pick-up thanks to compact package (Thickness: 4.8mm)
- (3) Voltage output type (Needless of external noise solution)
- (4) Low current operation type (Operating current : TYP. 36mA)

■ Applications

CD-ROM drives

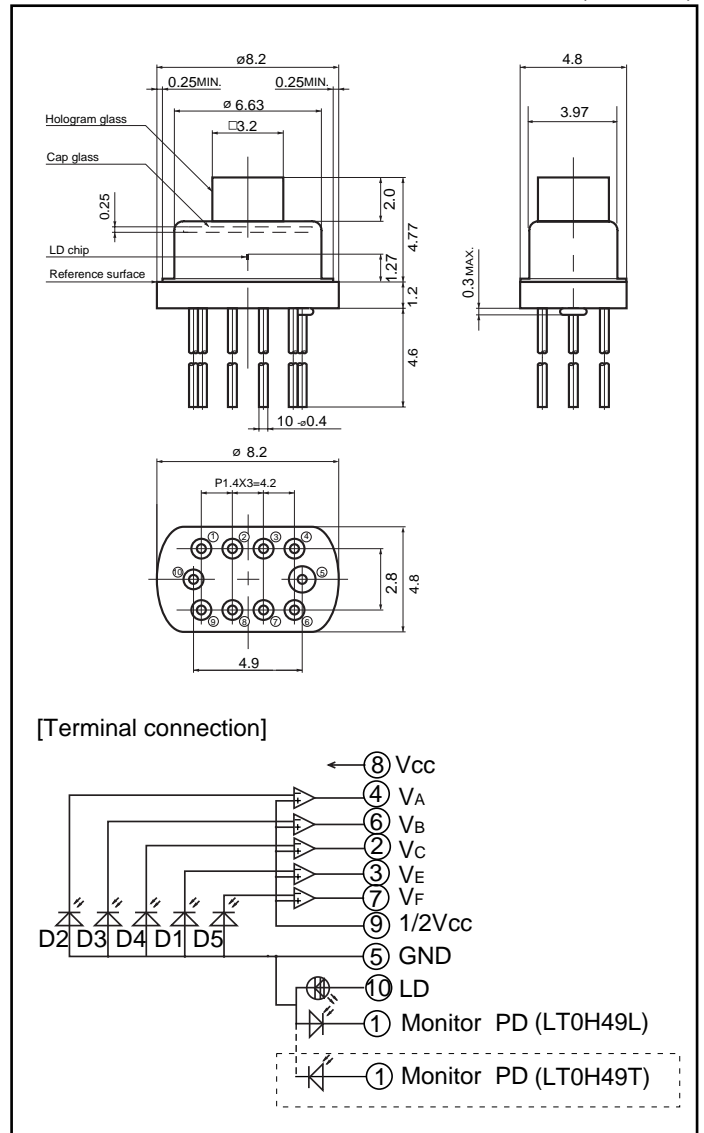
■ Model Name

- LT0H49L----Single power supply
- LT0H49T----Dual power supply

*OPIC: OPIC (Optical IC) is a trademark of the SHARP Corporation.
An OPIC consists of a light-detecting element and signal-processing circuit integrated onto a single chip.

■ Outline Dimensions

(Unit:mm)



■ Model Name

(T_c=25°C)

Parameter	Symbol	Ratings	Unit
*1 Optical power output	P _H	4.3	mW
Reverse voltage	Laser	2	V
		Monitor photodiode	
OPIC supply voltage	V _{CC}	6	
*2 Operating temperature	T _{opr}	-10 to +70	°C
*2 Storage temperature	T _{stg}	-40 to +85	
*3 Soldering temperature	T _{sol}	260(5s or less)	

- *1 Output power from hologram laser
- *2 Case temperature
- *3 At the position of 1.6mm from the bottom face of resin package

(Notice) • In the absence of device specification sheets, SHARP takes no responsibility for any defects that may occur in equipment using any SHARP device shown in catalogs, data books, etc. Contact SHARP in order to obtain the latest device specification sheets before using any SHARP device.

• Specifications are subject to change without notice for improvement.

(Internet) • Data for Sharp's optoelectronic/power devices is provided for internet. (Address <http://www.sharp.co.jp/ecg/>)

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■ Electro-optical Characteristics

(Vcc=5V, Tc=25°C)

	Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit	Remarks*1
Laser	Threshold current	I _{th}	-	-	25	39	mA	
	Operating current	I _{op}	P _H =2.7mW	-	36	45	mA	
	Operating voltage	V _{op}		-	1.75	2.2	V	
	Wavelength	λ p		770	780	795	nm	
	Monitor current	I _m	P _H =2.7mW, V _R =15V	LT0H49L 0.06	0.28	0.50	mA	
				LT0H49T 0.12	0.55	1.00		
	Emission point Accuracy(position)	Δx	-		- 80	-	80	μm
Δy		- 80			-	80	μm	
Δz		- 80			-	80	μm	
Differential efficiency	η	1.8mW I _{op} (2.7mW)-I _{op} (0.9mW)	0.17	0.27	0.55	mW/mA		
Monitor photodiode	Sensitivity(*)	S	V _R =15V	-	0.10	-	mA/mW	
	Dark current	I _D		-	-	150	nA	
	Terminal capacitance	C _t		-	9	-	pF	
OPIC for signal detection	Operating supply voltage	V _{cc}		4.5	-	5.5	V	
	Collector current	I _{cc}	V _{cc} =5V	2.0	4.5	9.0	mA	
	Output off-set voltage	V _{OD}	Difference from V _{cc} /2	-25	0	25	mV	V _{A-F}
	Extremes of off-set voltage	ΔV _{OD}	V _{cc} =5V, No light	-15	0	15	mV	V _A -V _B , V _E -V _F
	Response frequency*2	f _{CF}	V _{cc} =5V, -3dB (*3)	24.0	30.0	-	MHz	V _A , V _B , V _C
f _{CR}		V _{cc} =5V, -3dB	1.0	2.0	-	MHz	V _E , V _F	

* Sensitivity for output power from hologram laser

*1 Applicable divisions correspond to pattern segment No.

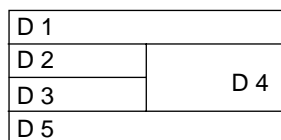


Fig.1

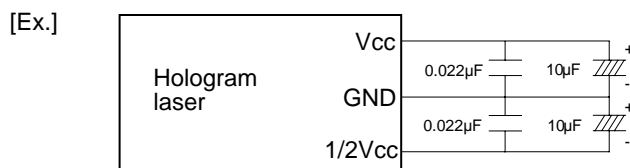
Terminal No.

D 1 ——— V_E
 D 2 ——— V_A
 D 3 ——— V_B
 D 4 ——— V_C
 D 5 ——— V_F

*2 Output amplitude = 0dB(input signal 100MHz)

*3 $f_{CF} = (f_c(V_A) + f_c(V_B) + 2f_c(V_C)) / 4$

Note) Please attach bypass capacitor at the position of 1cm or less from pins (between V_{cc} and GND, GND and 1/2V_{cc}).



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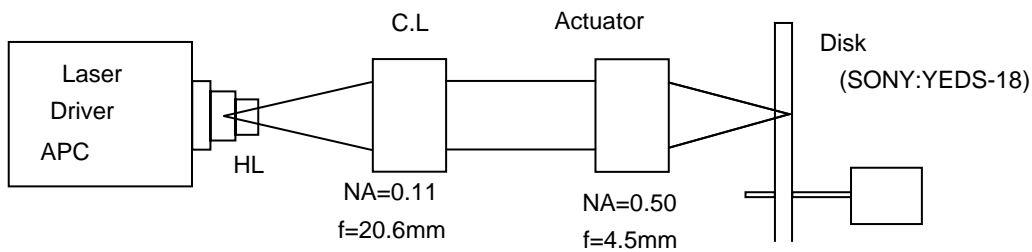
■ Electro-optical Characteristics*1

(V_{CC}=5V, T_c=25°C)

Parameter	Symbol	Condition	MIN.	TYP.	MAX.	Unit
Focus error signal offsetting*2		V _{RF} =0.55V	-0.5	-	0.5	μ m
Focus error balance*3		V _{RF} =0.55V	-20	-	20	%
Radial error balance*4		P _O =3.0mW	-20	-	20	%
RF output amplitude*5	V _{RF}	P _O =3.0mW	0.38	0.9	-	V p-p
Focus error signal output amplitude*6		V _{RF} =0.55V	0.23	0.35	0.47	V p-p
Radial error signal output amplitude		V _{RF} =0.55V	0.08	0.12	0.16	V p-p

V_A, V_B, V_E, V_F : Refer to pattern segment No.(Fig.1).

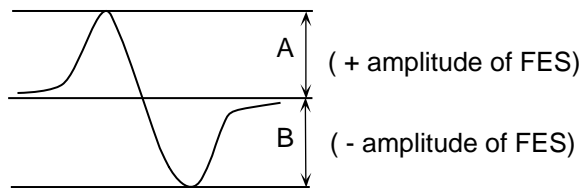
*1 Measuring method is shown below.



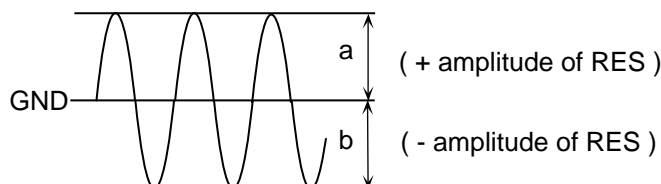
Measuring method of electro-optical characteristics

*2 Distance between FES=0 and jitter Min. point

*3 $(a - b) / (a + b)$



*4 $\frac{(a - b)}{2 \times (a + b)}$



*5 Amplitude of V_A + V_B + 2V_C, focus/radial servo is ON-state.

*6 V_B-V_A at focus rocking condition

*7 V_E-V_F under the condition that only focus servo is effected.