

LT0H4AL/LT0H4AT

Compact Size Hologram Laser for Pure-CAV
CD-ROM Drive (Equivalent to X32 speed)

■ Features

- (1) With built-in high speed OPIC* (MIN.36MHz)
- (2) Voltage output type (External noise solution is unnecessary.)
- (3) Compact package (4.8mm thickness)
- (4) Maximum optical power output : 4.3mW^{※1}
- (5) Wavelength : 780nm

*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.

■ Model No.

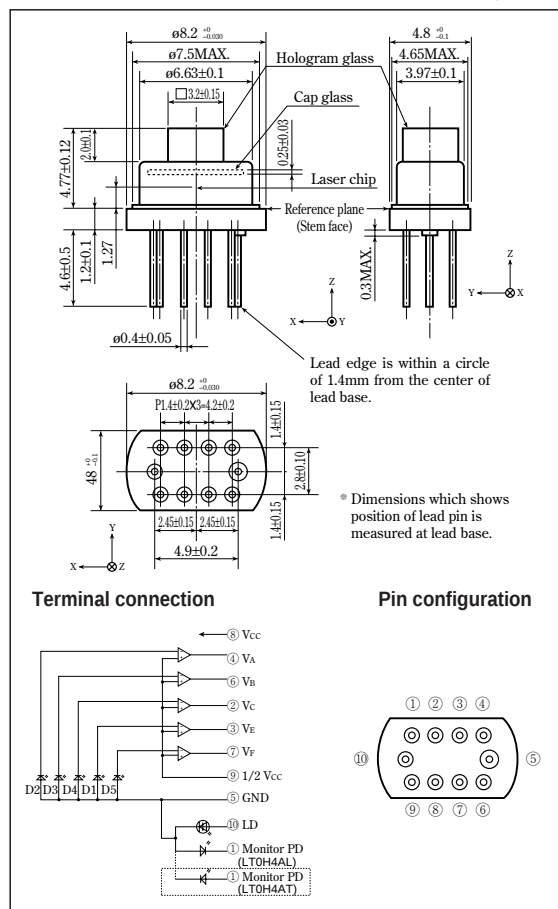
- (1) LT0H4ALSingle power supply
- (2) LT0H4ATDual power supply

■ Applications

- (1) Pure-CAV (equivalent to ×32 speed) CD-ROM drives

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(T_c=25°C)

Parameter	Symbol	Rating	Unit
※1 Optical power output	P _H	4.3	mW
Reverse voltage	V _R	2	V
		30	V
OPIC supply voltage	V _{CC}	6	V
※2 Operating temperature	T _{opr}	-10 to +70	°C
※2 Storage temperature	T _{slg}	-40 to +85	°C
※3 Soldering temperature	T _{sold}	260(5s to less)	°C

※1 Output power from hologram laser

※2 Case temperature

※3 At the position of 1.6mm or more from the lead base

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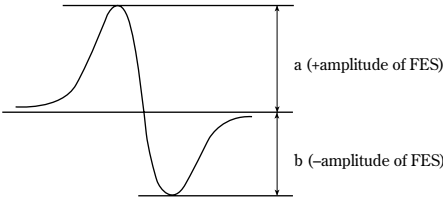
Electro-optical Characteristics

(Vcc=5V, Tc=25°C)

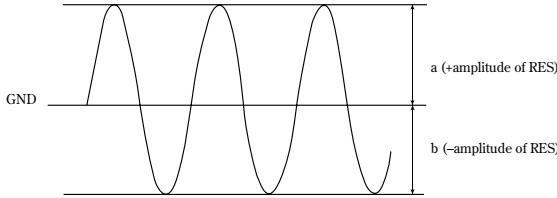
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
*1 Focal offset	DEF	V _{RF} =0.55V	-0.7	-	+0.7	μm	
*2 Focal error symmetry	B _{FES}	V _{RF} =0.55V	-25	-	+25	%	
*3 Radial error balance	B _{RES}	P _H =3.0mW	-25	-	+25	%	
*4 RF output amplitude	V _{RF}	P _H =3.0mW	0.38	0.90	-	V _{P-P}	
*5 FES output amplitude	V _{FES}	V _{RF} =0.55V	0.23	0.35	0.47	V _{P-P}	
	I _{FES}						
*6 RES output amplitude	V _{RES}	V _{RF} =0.55V	0.08	0.12	0.16	V _{P-P}	
	I _{RES}						
Threshold current	I _{th}	—	-	25	39	mA	
Operating current	I _{op}	P _H =2.7mW	-	36	45	mA	
Operating voltage	V _{op}	P _H =2.7mW	-	1.75	2.2	V	
Wavelength	λ _p	P _H =2.7mW	770	780	795	nm	
Monitor current	I _m	P _H =2.7mW, V _R =15V	LT0H4AL	0.06	0.28	0.50	mA
			LT0H4AT	0.12	0.55	1.00	
Differential efficiency	η	$\frac{1.8\text{mW}}{I(2.7\text{mW})-I(0.9\text{mW})}$	0.17	0.27	0.55	mW/mA	

*1 Distance between FES=0 and jitter minimum point
At the condition of FES sensitivity = 20%/1μ m

*2 (a-b) / (a+b)



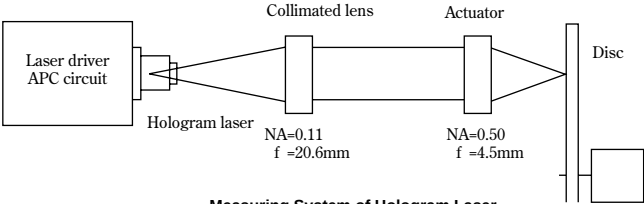
*3 $\frac{a-b}{2 \times (a+b)}$



*4 Amplitude of V_A+V_B+2V_C (focal servo ON, radial servo ON)

*5 V_B-V_A (Focal vibration)

*6 V_E-V_F (focal servo ON, radial servo OFF)



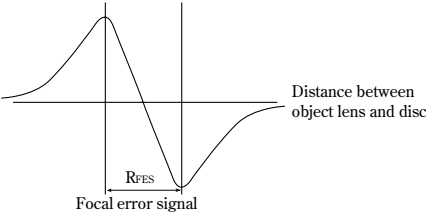
Measuring System of Hologram Laser

Electro-optical Characteristics of Hologram Laser (Design Standard)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*7 Focal dynamic range	R _{FES}		-	12	-	μm
*8 FES sensitivity	S _{FES}		16	20	24	%/μm

*7

*8 Practical value



■ Electro-optical Characteristics of Laser Diode (Design Standard) (Tc=25°C)

Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Radiation characteristics	※9 Symmetry	Parallel	S	Po=3mW, into NA=0.11	-25	-	+25	%
		Perpendicular	S _⊥		-15	-	+15	%
Emission point accuracy		Position	Δx	—	-80	-	+80	μm
			Δy	—	-80	-	+80	μm
			Δz	—	-80	-	+80	μm
Coherence			γ	Po=3mW	-	-	0.99	

■ Electrical Characteristics of Monitor Photodiode (Design Standard) (Tc=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
※9 Sensitivity		S	V _R =15V	-	0.20	-	mA/mW
Dark current		I _d	V _R =15V	-	-	150	nA
Terminal capacitance		C _t	V _R =15V	-	3.5	-	pF

※9 For hologram output power

■ Electro-optical Characteristics of OPIC for Siganal Detection (Design Standard) (Vcc=5V, Tc=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit	※10 Segment
Supply voltage	V _{CC}	—	4.5	-	5.5	V	-
Supply current	I _{CC}	—	5	7	10	mA	-
※11 Output off-set voltage	V _{OD1}	No light	-30	0	+30	mV	V _A ,V _B
	V _{OD2}		-30	-	+50	mV	V _C
	V _{OD3}		-25	0	+25	mV	V _E ,V _F
Off-set voltage difference	ΔV _{OD1}		-30	0	+30	mV	V _A -V _B
	ΔV _{OD2}		-25	0	+25	mV	V _E -V _F
※12 Response frequency	f _{CF}	-3dB	36	-	-	MHz	V _A ,V _B
			30	-	-	MHz	V _C
	f _{CR}		3	5	-	MHz	V _E ,V _F
※12 Peaking level	V _{PK}	f=0.1MHz to BW=10kHz	-	-	3.5	dB	V _A -V _B
			-	-	2	dB	V _C

※10 Applicable divisions correspond to pattern segment No.

※11 Difference from Vcc/2

※12 Output amplitude=0dB(input signal 100kHz)

Segment No. output

D1	D4
D2	
D3	
D5	

D 1	V _E
D 2	V _A
D 3	V _B
D 4	V _C
D 5	V _F

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