

GH6M035A5B

3mm Thickness Resin type Hologram Laser for Recording MD Player

■ Features

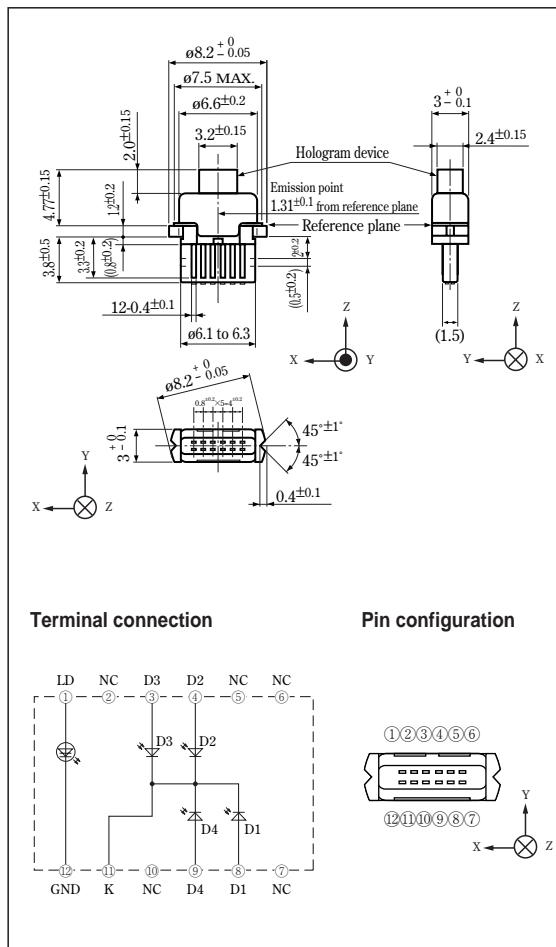
- (1) Super-thin package (3mm thickness) due to insert frame structure
- (2) Low current drive type
I_{op} : TYP. 50mA

■ Applications

- (1) Recording MD players

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(T_c=25°C)

Parameter	Symbol	Rating	Unit
*1 Optical power output	P _H	31.5	mW
Reverse voltage	Laser	2	V
	Monitor photodiode	15	V
*2 Operating temperature	T _{opr}	-10 to +60	°C
*2 Storage temperature	T _{stg}	-40 to +85	°C
*3 Soldering temperature	T _{sold}	260	°C

*1 Output power from hologram laser, CW (Continuous Wave) drive

*2 Case temperature

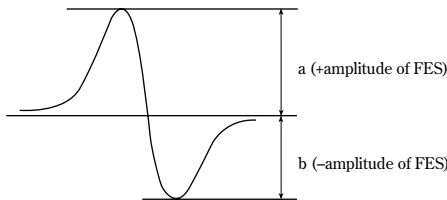
*3 At the position of 1.6mm from the lead base (Within 5s)

■ Electro-optical Characteristics

(Tc=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Focal offset	DEF	Collimated lens output power P _{CL} =1.1mW	-0.5	-	+0.5	μm
*1 Focal error symmetry	B _{FES}		-15	-	+15	%
*2 Radial offset	-		53	-	148	%
*3 FES output amplitude	I _{FES}		2.0	4.6	6.1	μA
*4 Main spot balance	MSB		70	100	130	%
*5 Stray light	-	P _H =4mW	-	-	0.1	μA
Threshold current	I _{th}	-	1	15	50	mA
Operating current	I _{op}	P _H =27mW	5	50	70	mA
Operating voltage	V _{op}		-	1.9	2.2	V
Wavelength	λ _p		770	785	800	nm
Differential efficiency	η _d	$\frac{18\text{mw}}{I(27\text{mW})-I(9\text{mW})}$	0.54	0.77	1.1	mW/mA

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

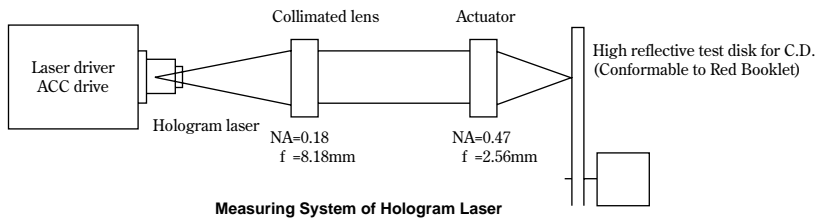


*2 D1 / D4 (focal servo ON)

*3 D2-D3 (Focal vibration)

*4 (D1+D4) / (D2+D3)

*5 Output of D2, D3 when hologram output is 4mW and outside light is cut off.



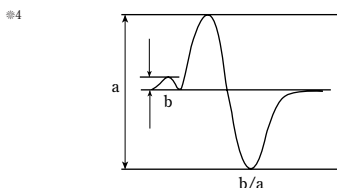
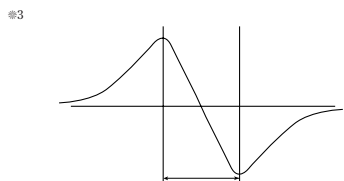
■ Electro-optical Characteristics of Hologram Laser (Design Standard*)

(Tc=25°C)

Parameter	Conditions	MIN.	TYP.	MAX.	Unit
*1 RF output amplitude	P _{CL} =1.1mW	6	10.5	-	μA
*2 RES output amplitude		1	2	3.5	μA
*3 Focal error signal capture range		-	19	-	μm
*4 Focal error noise		-7	-	+7	%
Space between main and sub beam	Disc surface	-	19.7	-	μm

*1 Amplitude of D1+D2+D3+D4 (focal servo ON, radial servo ON)

*2 Amplitude of D1-D4 (focal servo ON)



■ Optical Characteristics of Hologram Device (Design Standard*)

(Tc=25°C)

Parameter	Conditions	MIN.	TYP.	MAX.	Unit
Transmissive wave aberration	-	-	-	λ/8	-
Surface parallelism	-	-	-	5	min.
Hologram diffraction efficiency (0 : 1)	λ _p =780nm	-	80 : 8	-	%
Grating diffraction intensity ratio (0 : 1)		9 : 1	10.5 : 1	12 : 1	-
Grating diffraction intensity ratio (+1 : -1)		0.9	1	1.1	-
Grating rotation angle	to hologram parting line	-	1.16	-	°

■ Electro-optical Characteristics of Laser Diode (Without Hologram Device) (Design Standard*)

(Tc=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Half intensity angle	Parallel	P ₀ =33mW	8.5	-	13	°	
	Perpendicular		θ _L	14	-	26	°
Emission characteristics Deviation angle	Parallel		α//	-2	-	+2	°
	Perpendicular		α _L	-3	-	+3	°
Emission characteristics, Beam shift		Δθ// at P ₀ =33/3mW	-0.7	-	+0.7	°	
Misalignment position	ΔX, Y, Z	-	-80	-	+80	μm	
Kink	LKink	-	-15	-	+15	%	
Polarization ratio (TE/TM)		P ₀ =3mW	50	-	-	-	
Polarization angle (TM deviance)			-7	-	+7	°	
Chip thickness	-	Active layer to chip edge	-	-	55	μm	

■ Electro-optical Characteristics of Photodiode for Signal Detection (Design Standard*)

(Tc=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Reverse voltage	V _R	I _R =10μA	12.5	-	50	V
Terminal capacitance	D2, D3	V _R =12.5V, f=1MHz	1.2	-	5	pF
	D1, D4		C _t	1.4	-	
Sensitivity	S	λ _p =780nm	0.4	0.5	0.65	A/W
Response time	D2, D3	V _R =15V, R _L =180Ω	-	10	120	ns
	D1, D4		tr, tf	-	10	

* These parameters are not guaranteed performance, but general specifications of each optical element which makes up a hologram laser.

• Please refer to the chapter "Handling Precautions"

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