

GH6CD05B3A

(Under development)

■ Features

- (1) With built-in 3V operation(3 to 5V), ×8 speed playback OPIC*
- (2) Reducing variety of offset voltage (40% reduction) enables easy compatibility with CD-RW media.
- (3) Insert frame structure enables easy mounting compared to conventional pin structure.
- (4) Thin(4.8mm thickness) and compact package enables thin and compact pick-up design.
- (5) With built-in beam splitter and diffraction grating
*OPIC : (Optical IC) is a trademark of SHARP Corporation.
An OPIC consists of a light-detecting element and a signal-processing circuit integrated onto a single chip.

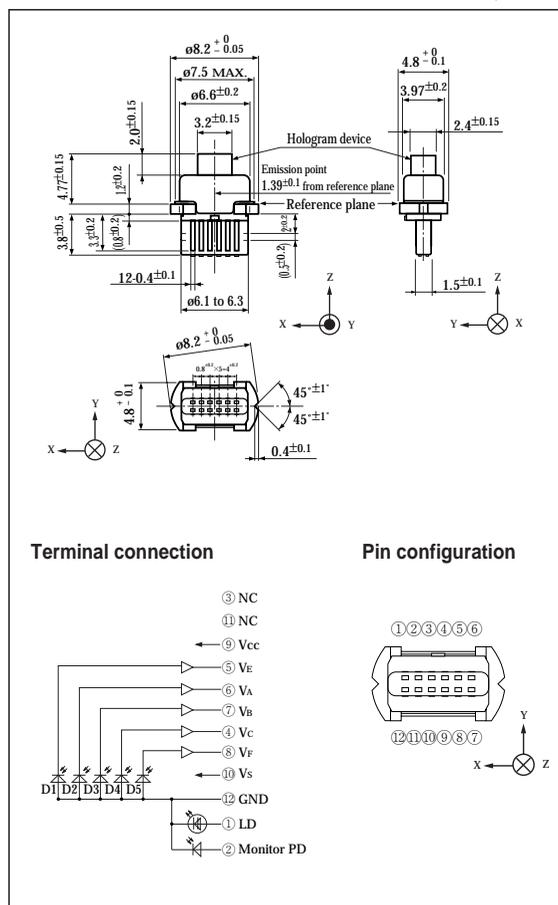
■ Applications

- (1) CD audio players
- (2) Video CD players

4.8mm Thickness Resin Stem Hologram Laser for CD Audio/Video CD Drive

■ 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	Laser	2	V
		Monitor photodiode	30	V
OPIC supply voltage	V _{CC}	6	V	
② Operating temperature	T _{opr}	-10 to +70	°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 0.5mm from the lead base (Within 5s)

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■ Electro-optical Characteristics

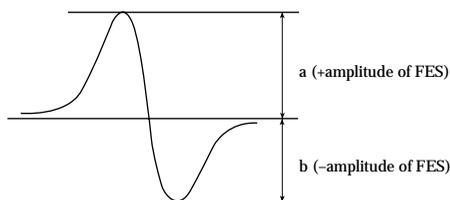
(V_{CC}=5V, V_S=1/2 V_{CC}, T_C=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*1 Focal offset	DEF	V _{RF} =1.1V	-0.7	-	+0.7	μm
*2 Focal error symmetry	B _{FES}	V _{RF} =1.1V	-25	-	+25	%
*3 Radial error balance	B _{RES}	P _H =3.0mW	-25	-	+25	%
*4 RF output amplitude	V _{RF}	P _H =3.0mW	0.9	(1.7)	-	V
*5 FES output amplitude	V _{FES}	V _{RF} =1.1V	0.46	(0.7)	0.94	V
*6 RES output amplitude	V _{RES}	V _{RF} =1.1V	0.25	(0.36)	0.49	V
Threshold current	I _{th}	-	-	(25)	39	mA
Operating current	I _{op}	P _H =3.0mW	-	(36)	50	mA
Operating voltage	V _{op}	P _H =3.0mW	-	(1.85)	2.2	V
Wavelength	λ _p	P _H =3.0mW	770	(780)	795	nm
Output current	I _m	P _H =3.0mW, V _R =15V	0.06	(0.32)	0.60	mA
Differential efficiency	η _d	$\frac{2.0\text{mW}}{I(3.0\text{mW})-I(1.0\text{mW})}$	0.17	(0.27)	0.55	mW/mA

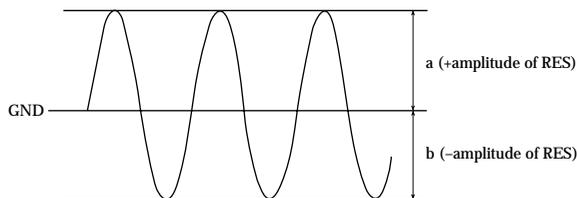
*1 Distance between FES=0 and jitter minimum point

At the condition of FES sensitivity = 20%/1μm

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



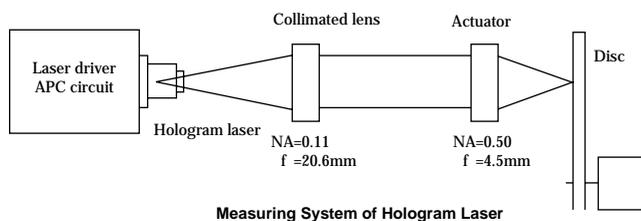
$$*3 \frac{a-b}{2 \times (a+b)}$$



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

*5 V_A-V_B (focal vibration)

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

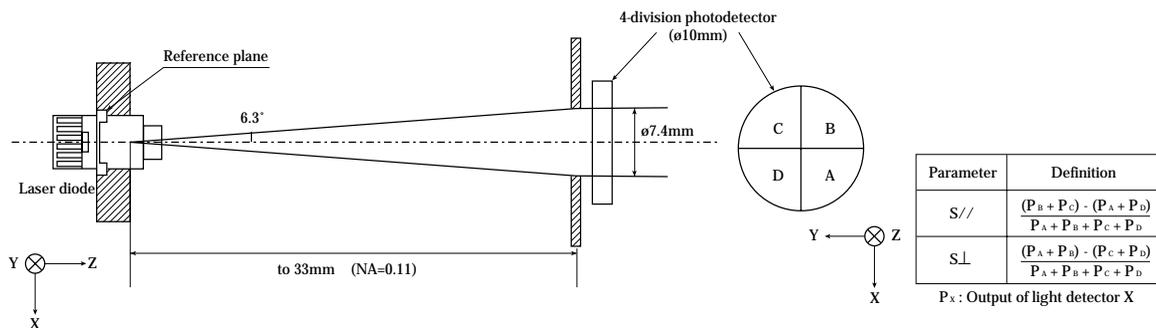


■ Electro-optical Characteristics of Laser Diode (Design Standard*)

(T_C=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Emission characteristics	*1 Symmetry	Parallel	P _o =3mW, Into NA=0.11	-25	-	+25	%
		Perpendicular		S.L	-15	-	+15
Misalignment position			-	Δx	-	+80	μm
				Δy	-	+80	μm
				Δz	-	+80	μm
Z - position of emission point		z	-	-	1.39	-	mm
Interference pattern intensity		α	P _o =3mW	-	-	0.99	-

*1 Measuring method of radiation symmetry



■ Electrical Characteristics of Monitor Photodiode (Design Standard*)

(T_C=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*2 Sensitivity	S	V _R =15V	-	0.11	-	mA/mW
Dark current	I _D		-	-	150	nA
Terminal capacitance	C _t		-	4.2	-	pF

*2 For hologram output power

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

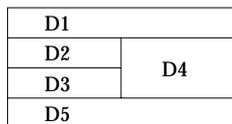
(T_C=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit	*3 Segment
Supply voltage	V _{CC}		2.8	3	5.5	V	
Supply current	I _{CC}	V _{CC} =3V	6	9	12	mA	
*4 Output offset voltage	V _{OD}	V _{CC} =3V No light	-15	0	+15	mV	V _A , V _B , V _C
Offset voltage difference	ΔV _{OD}		-15	0	+15	mV	V _A -V _B
Response frequency	f _{CF}	*5 V _{CC} =3V, -3dB R _L =10kΩ, C _L =10pF	12	18	-	MHz	V _A , V _B , V _C
	f _{CR}		1.2	1.8	-	MHz	V _E , V _F

*3 Applicable divisions correspond to output terminals.

*4 Difference from V_S

*5 Output amplitude=0dB (input signal 100kHz) BW=10kHz



Segment No.	Output
D 1	V _E
D 2	V _A
D 3	V _B
D 4	V _C
D 5	V _F

* 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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