

GH6D307B5A/GH6D307B5B

3mm Thickness Resin Stem Hologram Laser for X6 Speed DVD-ROM Drive

■ Features

- (1) With built-in high speed response OPIC[®] (MIN. 40MHz) for ×6 speed DVD-ROM drives
- (2) For reading of low reflective disc (DVD-R, DVD-RW) due to built-in RF amp.
- (3) Easy mounting due to insert frame structure compared to conventional pin structure
- (4) Super-thin package (Thickness : 3.0mm)

*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.

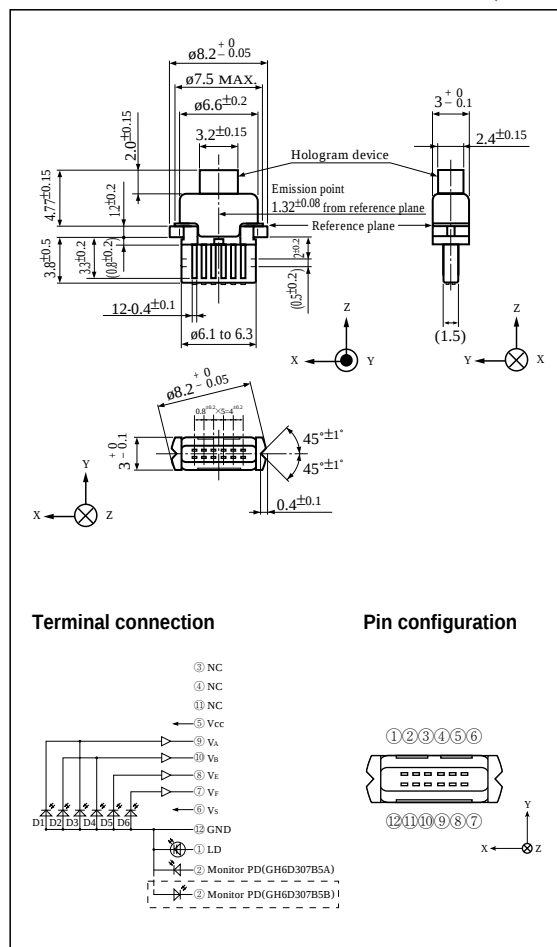
- (1) GH6D307B5A.....Dual power supply
- (2) GH6D307B5B.....Single power supply

■ Applications

- (1) DVD-ROM drives
- (2) DVD-ROM drives for notebook PC

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(T_C=25°C)

Parameter	Symbol	Rating	Unit
*1 Optical power output	P _H	4.5	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 _{stg}	-40 to +85	°C
*3 Soldering temperature	T _{sold}	260	°C

*1 Output power from hologram laser

*2 Case temperature

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

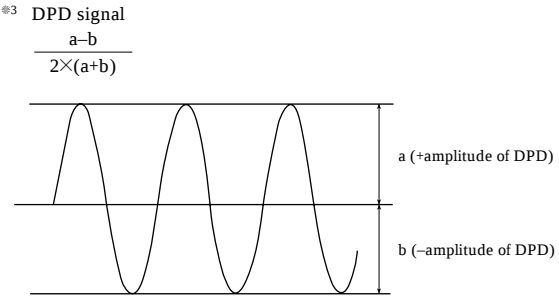
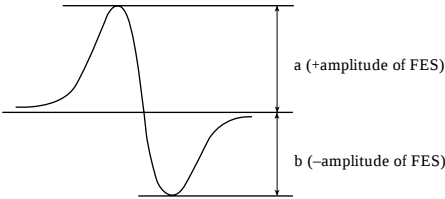
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Electro-optical Characteristics

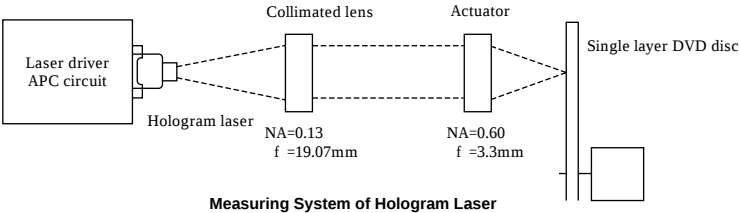
(V_{CC}=5V, V_S=1/2V, T_C=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
#1	Focal offset	DEF	V _{RF} =0.83V	-0.5	-	+0.5	μm
#2	Focal error symmetry	B _{FES}	V _{RF} =0.83V	-25	-	+25	%
#3	Radial error balance	B _{RES}	P _H =3.0mW	-25	-	+25	%
#4	RF output amplitude	V _{RF}	P _H =3.0mW	0.55	0.83	1.11	V
#5	FES output amplitude	V _{FES}	V _{RF} =0.83V	0.38	0.58	0.8	V
Threshold current		I _{th}	—	-	27	35	mA
Operating current		I _{op}	P _H =2.85mW	-	36	45	mA
Operating voltage		V _{op}	P _H =2.85mW	-	2.2	2.6	V
Wavelength		λ _p	P _H =2.85mW	640	650	660	nm
Output current	GH6D307B5A	I _m	P _H =2.85mW, V _R =15V	0.02	0.1	0.19	mA
Differential efficiency		η _d	$\frac{1.9\text{mW}}{I(2.85\text{mW})-I(0.95\text{mW})}$	0.35	0.55	0.84	mW / mA
#6	Main spot balance	MSB	P _H =3.0mW	75	100	125	%
#7	Radial spot balance	RSB	P _H =3.0mW	75	100	125	%

#1 Distance between FES=0 and jitter minimum point
#2 (a-b) / (a+b)



#4 Amplitude of V_A+V_B+V_E+V_F (focal servo ON, radial servo ON)
#5 V_A-V_B (Focal vibration)
#6 (V_A+V_B) / (V_E+V_F) (focal servo ON, radial servo OFF)
#7 V_E / V_F



Measuring System of Hologram Laser

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

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Half intensity angle	Parallel	$\theta//$	Po=3mW	7	-	11	°
	Perpendicular	$\theta\perp$		26	-	35	°
Emission characteristics	Deviation angle	Parallel		-2.1	-	+2.1	°
		Perpendicular		-3	-	+3	°
Misalignment position		Δx	-	-80	-	+80	μm
		Δy		-80	-	+80	μm
		Δz		-80	-	+80	μm
⑥ Interference pattern intensity		α	Po=3mW	-	-	1	-

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

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
① Sensitivity		S	VR=15V	-	0.02	-	mA/mW
Dark current		Id		-	-	150	nA
Terminal capacitance		Ct		-	3.5	-	pF

① For hologram output power

■ Electro-optical Characteristics of OPIC for Signal Detection (Design Standard) (Tc=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit	② Segment
Supply voltage	VCC	-	4.5	5.0	5.5	V	-
Reference voltage	Vs	Vs=1/2VCC	2.25	2.5	2.75	V	-
Supply current	ICC	VCC=5V	6	-	16	mA	-
③ Output off-set voltage	VOD	VCC=5V, no light	-30	0	+30	mA	VA, VB, VE, VF
Off-set voltage difference	ΔV_{OD}		-30	0	+30	mV	VA-VB, VE-VF
④ Response frequency	fCF	VCC=5V, -3dB	40	-	-	MHz	VA, VB, VE, VF
⑤ Peaking level	VPK	f=0.1 to 20MHz, BW=10kHz	-2	-	+2	dB	VA, VB, VE, VF

② Applicable divisions correspond to output terminals

③ Difference from Vs

④ Output amplitude=0dB (input signal 100kHz)

⑤ Output amplitude=0dB (input signal 100kHz), peaking characteristics from 100kHz to 20MHz.

⑥ Noise solution against feed-back light (Radio frequency modulation circuit) is required.

	Segment No.	Output
D5	D 1 + D 3	VA
D1	D 2 + D 4	VB
D2	D 5	VE
D3	D 6	VF
D4		
D6		

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