

GH6C005B3A/GH6C005B3B GH6C005B5A/GH6C005B5B

Compact Resin type Hologram Laser for CD Audio/Video CD Player

■ Features

- (1) Insert frame structure enables easy mounting compared to conventional pin structure.
- (2) Thin and compact package enables thin and compact pick-up design.
GH6C005B3A/B : 4.8mm thickness
GH6C005B5A/B : 3.0mm thickness
- (3) With built-in beam splitter and diffraction grating

■ Model No.

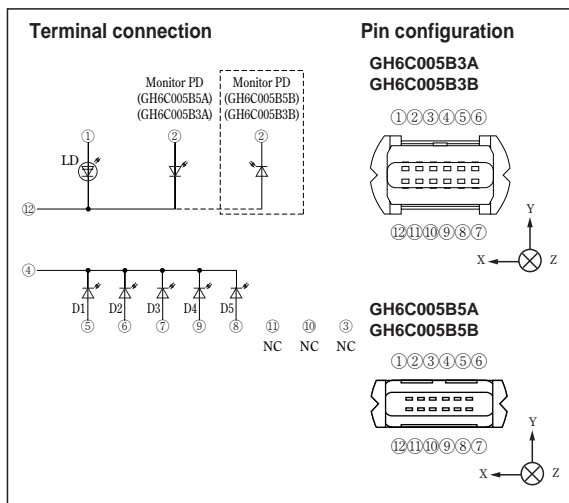
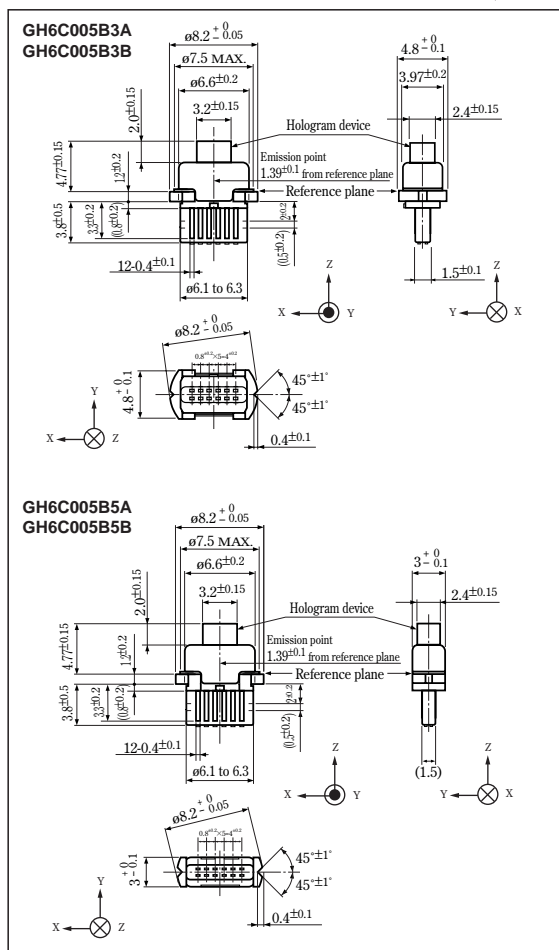
- (1) GH6C005B3A/GH6C005B5ADual power supply
- (2) GH6C005B3B/GH6C005B5BSingle power supply

■ Applications

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

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(T_c=25°C)

Parameter	Symbol	Rating	Unit		
*1 Optical power output	P _H	4.3	mW		
		Laser		2	V
		Monitor photodiode		30	V
		Signal detection photodiode		15	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 1.6mm or more from the lead base (Within 5s)

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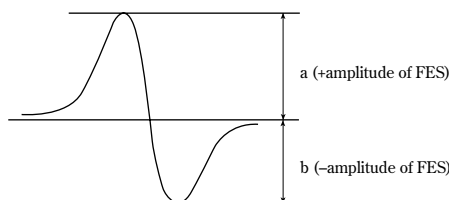
Electro-optical Characteristics

(V_{CC}=5V, T_C=25°C)

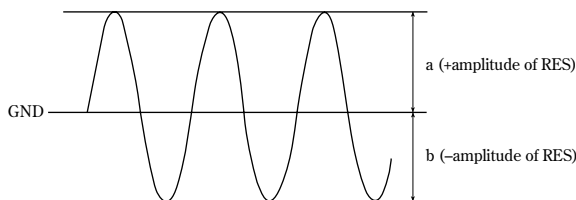
Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*1	Focal offset	DEF	R _F =6.0μA	-0.7	-	+0.7	μm
*2	Focal error symmetry	B _{FES}	R _F =6.0μA	-25	-	+25	%
*3	Radial error balance	B _{RES}	P _H =3.0mW	-25	-	+25	%
*4	RF output amplitude	I _{RF}	P _H =3.0mW	4.3	7.2	-	μA
*5	FES output amplitude	I _{FES}	R _F =6.0μA	2.6	3.9	5.2	μA
*6	RES output amplitude	I _{RES}	R _F =6.0μA	0.7	1.1	1.5	μA
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	2.20	V
Wavelength		λ _p	P _H =3.0mW	770	780	795	nm
Output current	GH6C005B3A/GH6C005B5A	I _m	P _H =3.0mW, V _R =15V	0.06	0.32	0.6	mA
	GH6C005B3B/GH6C005B5B	I _m		0.05	0.2	0.6	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 D₂+D₃+D₄ (focal servo ON, radial servo ON)

*5 D₂-D₃ (Focal vibration)

*6 D₁-D₅ (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	Symmetry	Parallel	S//	P ₀ =3mW, Into NA=0.11	-25	-	+25	%
		Perpendicular	S⊥		-15	-	+15	%
Misalignment position			Δx	-	-80	-	+80	μm
			Δy		-80	-	+80	μm
			Δz		-80	-	+80	μm
Interference pattern intensity			α	P ₀ =3mW	-	-	0.99	-

■ Electrical Characteristics of Monitor Photodiode (Design Standard*)

(GH6C005B3A/GH6C005B5A)

(T_C=25°C)

Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*1	Sensitivity		S	V _R =15V	-	0.11	-	mA/mW
Dark current			I _D		-	-	150	nA
Terminal capacitance			C _t		-	3.5	-	pF

(GH6C005B3B/GH6C005B5B)

(T_C=25°C)

Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*1	Sensitivity		S	V _R =15V	-	0.07	-	mA/mW
Dark current			I _D		-	-	150	nA
Terminal capacitance			C _t	V _R =15V, f=1MHz	-	7.7	-	pF

*1 For hologram output power

■ Electro-optical Characteristics of Photodiode for Signal Detection (Design Standard*) (GH6C005B3A)

(T_C=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit	*2 Segment
Reverse voltage	V _R	I _R =10μA	15	-	150	V	A, B, C
Dark current	I _d	V _R =15V	-	-	10	nA	A, B, C
Wavelength	λ _D		-	800	-	nm	A, B, C
Terminal capacitance	C _t	V _R =15V, f=1MHz	1.2	-	5.0	pF	B, C
			1.4	-	5.8	pF	A
*3 Short circuit current	I _{sc}	E _V =1 000lx	130	210	340	nA	A
			50	80	110	nA	B
			70	115	160	nA	C
Response time	tr, tf	V _R =15V, R _L =180Ω	-	10	200	ns	A
			-	10	120	ns	B, C

*2 Applicable divisions correspond to output terminals.

*3 Current of each segment (At other segments, Anode and Cathode is short-circuited.)

D1	D4
D2	
D3	
D5	

Segment No.	Output
D 1, D 5	A
D 2, D 5	B
D 3, D 5	C

* 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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