# GH6C005B3A/GH6C005B3B GH6C005B5A/GH6C005B5B

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

### ■ Features

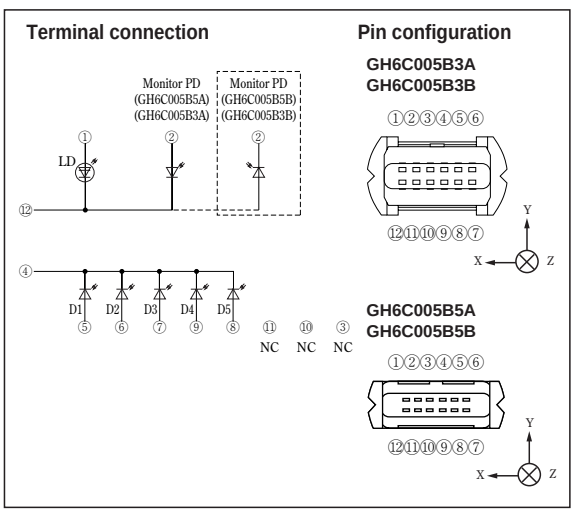
(1) Insert frame structure enables easy mounting compared to conventional pin structure.
(2) Thin and compact package enables thin and compact pick-up design.
GH6C005B3A/B : 4.8mm thickness
GH6C005B5A/B : 3.0mm thickness
(3) With built-in beam splitter and diffraction grating

### ■ Model No.

(1) GH6C005B3A/GH6C005B5A ....Dual power supply
(2) GH6C005B3B/GH6C005B5B ....Single power supply

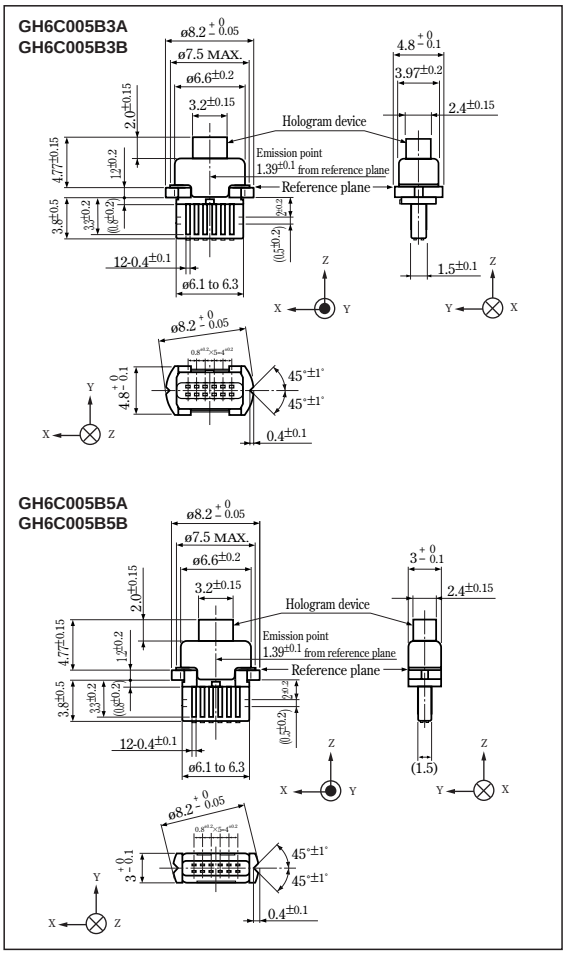
### ■ Applications

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




### ■ Outline Dimensions

(Unit : mm)




### ■ Absolute Maximum Ratings

(Tc=25°C)

| Parameter | | Symbol | Rating | Unit |
|---|---|---|---|---|
| ※1 Optical power output | | $P_H$ | 4.3 | mW |
| Reverse voltage | Laser | $V_R$ | 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)

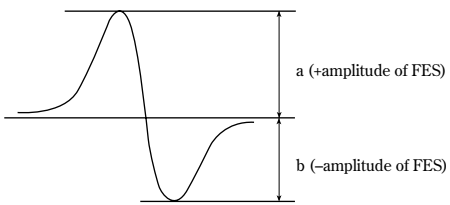
## ■ Electro-optical Characteristics

($V_{CC}$=5V, $T_C$=25°C)

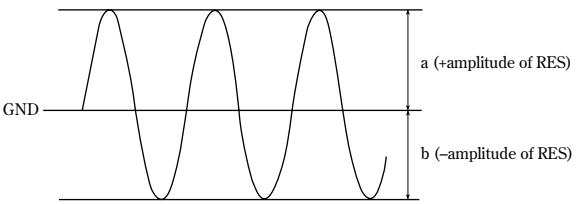
| Parameter | | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|---|---|---|---|---|---|---|---|
| ※1 Focal offset | | DEF | $R_F$=6.0μA | -0.7 | - | +0.7 | μm |
| ※2 Focal error symmetry | | $B_{FES}$ | $R_F$=6.0μA | -25 | - | +25 | % |
| ※3 Radial error balance | | $B_{RES}$ | $P_H$=3.0mW | -25 | - | +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 | | $\lambda_p$ | $P_H$=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 | | $\eta_d$ | $\frac{2.0mW}{I(3.0mW)-I(1.0mW)}$ | 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 $D_2+D_3+D_4$ (focal servo ON, radial servo ON)

※5 $D_2-D_3$ (Focal vibration)

※6 $D_1-D_5$ (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// | Po=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 | Po=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 |

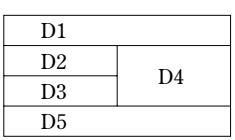
※1 For hologram output power

## ■ 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 | $\lambda_p$ | | - | 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 | $I_{sc}$ | Ev=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.




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

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

* 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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