

## GH7C605B5A/GH7C605B5B

3mm Thickness Resin Stem Hologram Laser  
for CD-ROM Drive(Equivalent to X40 Speed)

### Features

- (1) With built-in high speed response OPIC<sup>®</sup> (MIN. 40MHz)
- (2) For CD-ROM drives (equivalent to  $\times 40$  speed)
- (3) For high speed reading of low reflective disk (CD-R/RW media) due to built-in RF amp.
- (4) Easy mounting due to insert frame structure compared to conventional pin structure
- (5) Super-thin package (3mm thickness)
- (6) With built-in beam splitter and diffraction grating

<sup>®</sup>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.

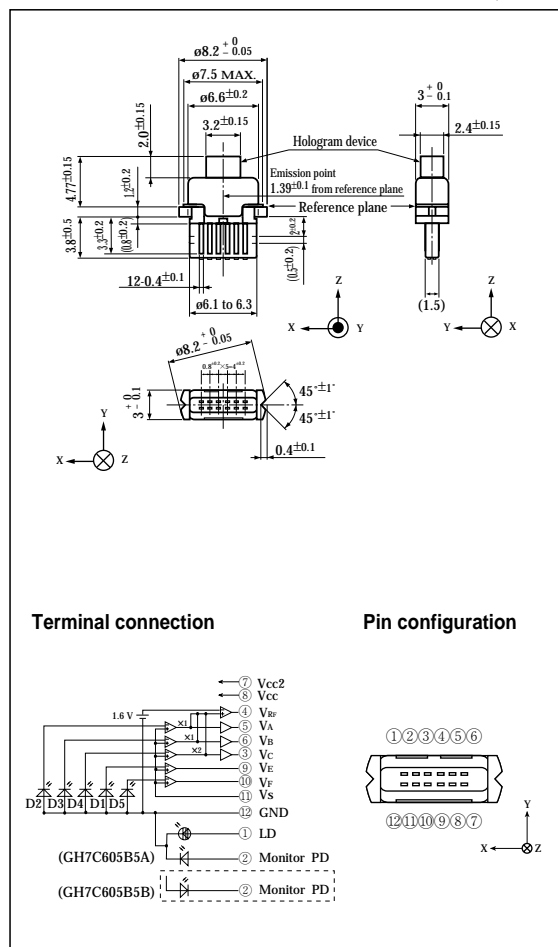
- (1) GH7C605B5A .....Dual power supply
- (2) GH7C605B5B .....Single power supply

### Applications

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

### Outline Dimensions

(Unit : mm)



### Absolute Maximum Ratings

(T<sub>C</sub>=25°C)

Parameter	Symbol	Rating	Unit
① Optical power output	P <sub>H</sub>	4.3	mW
Reverse voltage	V <sub>R</sub>	2	V
		30	V
OPIC supply voltage	V <sub>CC</sub>	6	V
② Operating temperature	T <sub>opr</sub>	-10 to +70	°C
② Storage temperature	T <sub>stg</sub>	-40 to +85	°C
③ Soldering temperature	T <sub>sold</sub>	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)

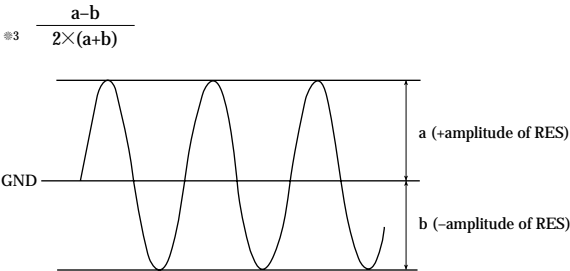
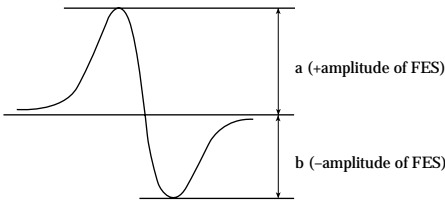
SHARP

■ Electro-optical Characteristics

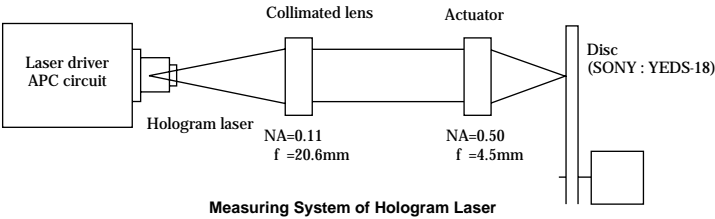
(V<sub>CC</sub>=5V, V<sub>S</sub>=2.1V, T<sub>C</sub>=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
①	Focal offset	DEF	V <sub>RF</sub> =1.1V	-0.7	-	+0.7	μm
②	Focal error symmetry	B <sub>FES</sub>	V <sub>RF</sub> =1.1V	-25	-	+25	%
③	Radial error balance	B <sub>RES</sub>	P <sub>H</sub> =3.0mW	-25	-	+25	%
④	RF output amplitude	V <sub>RF</sub>	P <sub>H</sub> =3.0mW	0.67	1.60	-	V
⑤	FES output amplitude	V <sub>FES</sub>	V <sub>RF</sub> =1.1V	0.28	0.43	0.59	V
⑥	RES output amplitude	V <sub>RES</sub>	V <sub>RF</sub> =1.1V	0.08	0.15	0.20	V
Threshold current		I <sub>th</sub>	—	-	34	-	mA
Operating current		I <sub>op</sub>	P <sub>H</sub> =3.0mW	-	47	-	mA
Operating voltage		V <sub>op</sub>	P <sub>H</sub> =3.0mW	-	1.85	2.5	V
Wavelength		λ <sub>p</sub>	P <sub>H</sub> =3.0mW	770	780	795	nm
Output current	GH7C605B5A	I <sub>m</sub>	P <sub>H</sub> =3.0mW, V <sub>R</sub> =15V	0.06	0.32	0.60	mA
	GH7C605B5B			0.05	0.22	0.60	mA
Differential efficiency		η <sub>d</sub>	$\frac{2.0\text{mW}}{I(3.0\text{mW})-I(1.0\text{mW})}$	-	0.27	-	mW/mA

- ① Distance between FES=0 and jitter minimum point  
At the condition of FES sensitivity = 20%/1μm
- ② (a-b) / (a+b)



- ④ Amplitude of V<sub>RF</sub> (focal servo ON, radial servo ON)
- ⑤ V<sub>A</sub>-V<sub>B</sub> (Focal vibration)
- ⑥ V<sub>E</sub>-V<sub>F</sub> (focal servo ON, radial servo OFF)

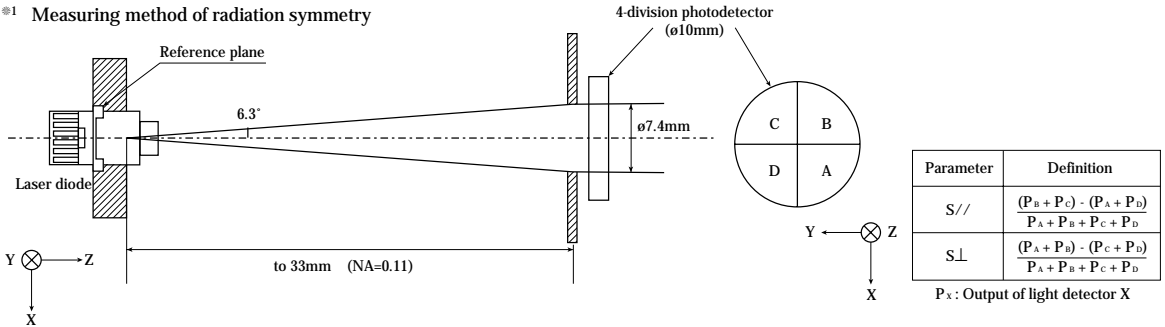


Electro-optical Characteristics of Laser Diode (Design Standard)

(T<sub>C</sub>=25°C)

Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Emission characteristics	Ⓜ1 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	-

① Measuring method of radiation symmetry



Electrical Characteristics of Monitor Photodiode (Design Standard)  
(GH7C605B5A)

(T<sub>C</sub>=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
② Sensitivity	S	V <sub>R</sub> =15V	-	0.11	-	mA/mW
Dark current	I <sub>D</sub>		-	-	150	nA
Terminal capacitance	C <sub>t</sub>		-	4.2	-	pF

(GH7C605B5B)

(T<sub>C</sub>=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
② Sensitivity	S	V <sub>R</sub> =15V	-	0.07	-	mA/mW
Dark current	I <sub>D</sub>		-	-	150	nA
Terminal capacitance	C <sub>t</sub>		-	7.7	-	pF

② For hologram output power

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

(V<sub>CC</sub>=5V, V<sub>S</sub>=2.1V±5%, T<sub>C</sub>=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit	#3 Segment	
Supply voltage	V <sub>CC</sub>		4.5	5	5.5	V		
Supply current	I <sub>CC</sub>		7	10	13	mA		
Vs working voltage range	VS		2.0	2.1	2.2	V		
#4 Output off-set voltage	V <sub>OD</sub>	No light	-25	0	25	mV	V <sub>A</sub> , V <sub>B</sub> , V <sub>C</sub>	
			-15	0	15	mV	V <sub>E</sub> , V <sub>F</sub>	
			-25	0	25	mV	V <sub>A</sub> -V <sub>B</sub>	
Off-set voltage difference	ΔV <sub>OD</sub>		-15	0	15	mV	V <sub>E</sub> -V <sub>F</sub>	
			Response frequency	#5 -3dB R <sub>L</sub> =10k, CL=10pF	f <sub>CRF</sub>	40	70	-
f <sub>CF</sub>	10				20	-	MHz	V <sub>A</sub> , V <sub>B</sub> , V <sub>C</sub>
f <sub>CR</sub>	2	4			-	MHz	V <sub>E</sub> , V <sub>F</sub>	
RF reference voltage	V <sub>RFO</sub>	P <sub>H</sub> =0mW No light	1.40	1.60	1.80	V	V <sub>RF</sub>	

③ Applicable divisions correspond to output terminals

D1	D4
D2	
D3	
D5	

Segment No.

D 1 .....V<sub>E</sub>  
D 2 .....V<sub>A</sub>  
D 3 .....V<sub>B</sub>  
D 4 .....V<sub>C</sub>  
D 5 .....V<sub>F</sub>

Output

④ Difference from V<sub>S</sub>

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

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    - Alarm equipment
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