

GH6C605B3A/GH6C605B3B GH6C605B5A/GH6C605B5B

Resin type Hologram Laser for CD-ROM Drive(Equivalent to X40 Speed)

■ Features

- (1) With built-in high speed response OPIC* (MIN. 40MHz)
- (2) For CD-ROM drives (equivalent to $\times 40$ speed)
- (3) Insert frame structure enables easy mounting compared to conventional pin structure.
- (4) Thin and compact package enables thin and compact pick-up design.

GH6C605B3A/B : 4.8mm thickness

GH6C605B5A/B : 3.0mm thickness

- (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.

■ Model No.

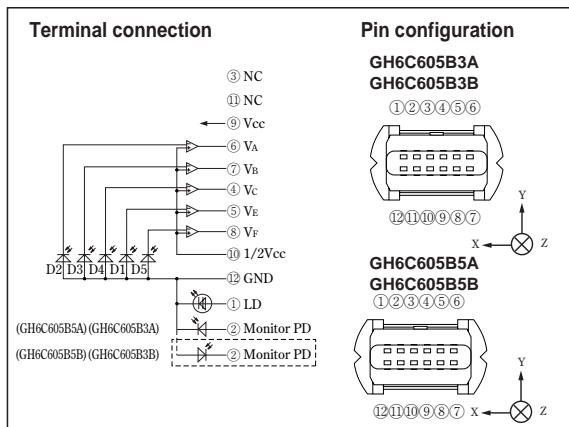
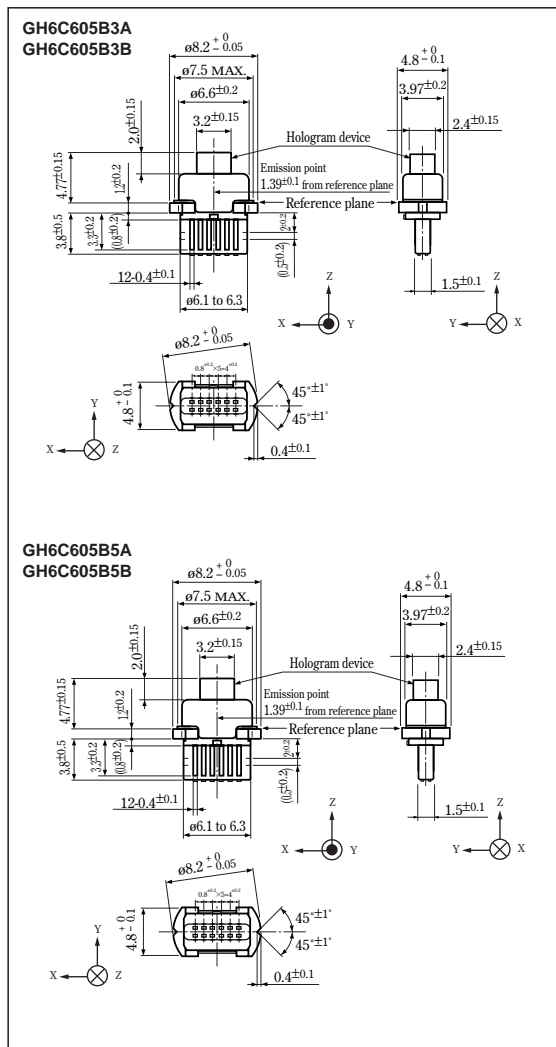
- (1) GH6C605B3A/GH6C605B5ADual power supply
- (2) GH6C605B3B/GH6C605B5BSingle power supply

■ Applications

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

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(T_c=25°C)

Parameter	Symbol	Rating	Unit
Optical power output	P _H	4.3	mW
Reverse voltage	V _R	2	V
		30	V
OPIC supply voltage	V _{CC}	6	V
Operating temperature	T _{opr}	-10 to +70	°C
Storage temperature	T _{stg}	-40 to +85	°C
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 from the lead base (Within 5s)

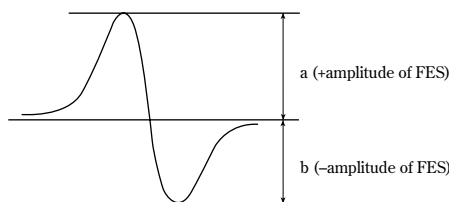
Electro-optical Characteristics

(V_{CC}=5V, T_C=25°C)

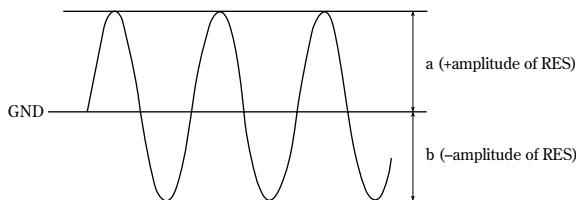
Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
#1	Focal offset	DEF	V _{RF} =0.55V	-0.7	-	+0.7	μm
#2	Focal error symmetry	B _{FES}	V _{RF} =0.55V	-25	-	+25	%
#3	Radial error balance	B _{RES}	P _H =3.0mW	-25	-	+25	%
#4	RF output amplitude	V _{RF}	P _H =3.0mW	0.42	1.00	-	V
#5	FES output amplitude	V _{FES}	V _{RF} =0.55V	0.23	0.35	0.47	V
#6	RES output amplitude	V _{RES}	V _{RF} =0.55V	0.08	0.12	0.16	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	GH6C605B3A/GH6C605B5A	I _m	P _H =3.0mW, V _R =15V	0.06	0.32	0.60	mA
	GH6C605B3B/GH6C605B5B			0.05	0.2	0.60	mA
Differential efficiency		η _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)



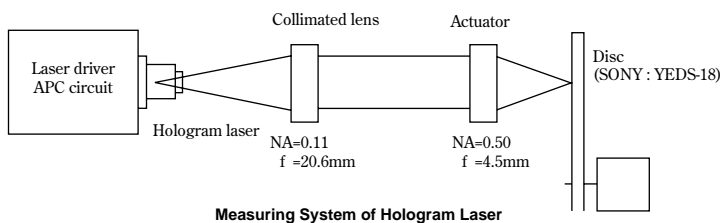
$$\#3 \frac{a-b}{2 \times (a+b)}$$



#4 Amplitude of 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)

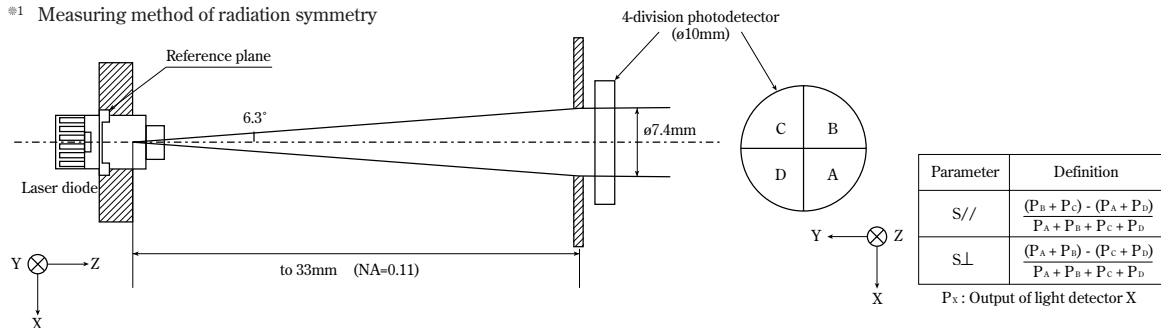


Electro-optical Characteristics of Laser Diode (Design Standard*)

(T_C=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Emission characteristics	Parallel	P ₀ =3mW, Into NA=0.11	-25	-	+25	%
	Perpendicular		-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	-

*#1 Measuring method of radiation symmetry



Electrical Characteristics of Monitor Photodiode (Design Standard*)

(GH6C605B3A/GH6C605B5A)

(T_C=25°C)

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

(GH6C605B3B/GH6C605B5B)

(T_C=25°C)

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

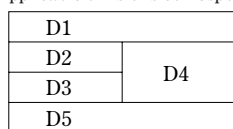
*#2 For hologram output power

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}		4.5	5	5.5	V	
Supply current	I _{CC}	V _{CC} =5V	6	9	12	mA	
Output offset voltage	V _{OD}	V _{CC} =5V No light	-25	0	+25	mV	V _A , V _B , V _C
			-15	0	+15	mV	V _E , V _F
Offset voltage difference	ΔV _{OD}		-25	0	+25	mV	V _A -V _B
			-15	0	+15	mV	V _E -V _F
Response frequency	f _{CF}	*#5 V _{CC} =5V, -3dB R _L =10kΩ, C _L =10pF	40	55	-	MHz	V _A , V _B , V _C
	f _{CR}		5	7	-	MHz	V _E , V _F

*#3 Applicable divisions correspond to output terminals.



Segment No.

Output

D 1 V_E

D 2 V_A

D 3 V_B

D 4 V_C

D 5 V_F

*#4 Difference from V_{CC}/2

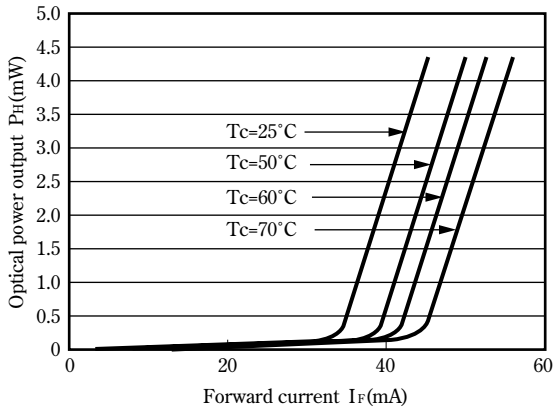
*#5 Output amplitude=0dB (input signal 100kHz) BW=10kHz

* These parameters are not guaranteed performance, but general specifications of each optical element which makes up a hologram laser.

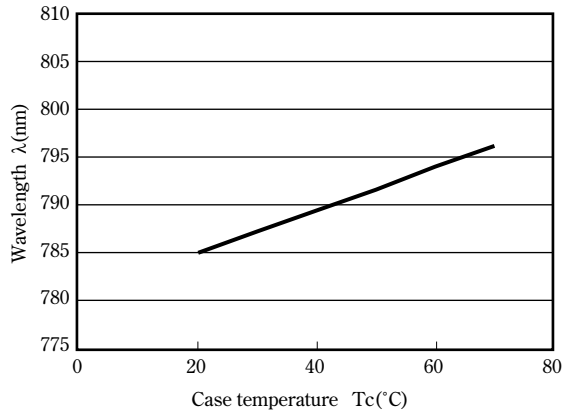
• Please refer to the chapter "Handling Precautions"

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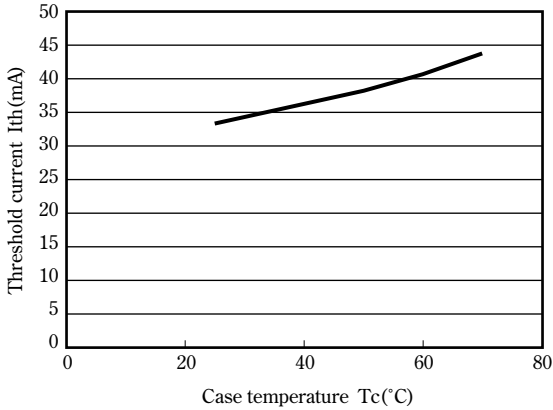
Optical power output - Forward current



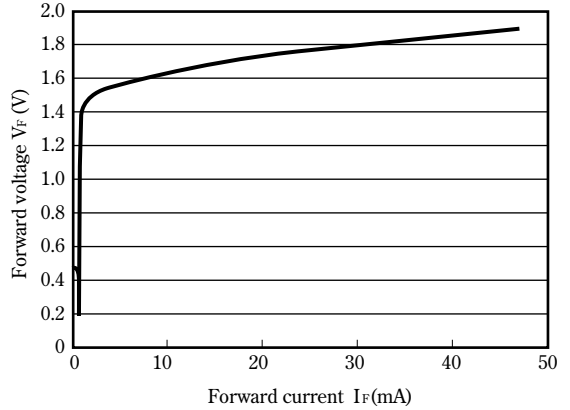
Case temperature dependence of wavelength



Case temperature dependence of threshold current



Forward voltage - Forward current



Note) Characteristics shown in diagrams are typical values. (not assurance value)

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