

GH6D305T5A

(Under development)

■ Features

(1) Employing a self-pulsation laser chip enables a compact and low cost pick-up.

It eliminates the need for radio frequency modulation circuit and related resistors/shields.

(2) Insert frame structure enables super-thin package (3.0mm thickness)

(3) With built-in high speed response OPIC* (MIN. 40MHz)

(4) 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.

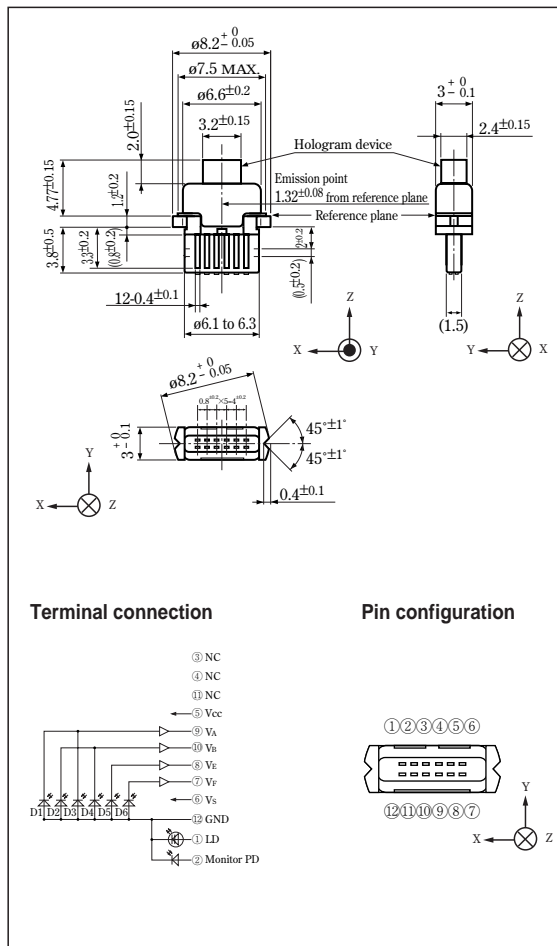
■ Applications

(1) DVD video players

Self-pulsation Type, 3mm Thickness Resin Type Red Hologram Laser for DVD-Video

■ 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	Laser	2
		Monitor photodiode	30
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, CW (Continuous Wave) drive

*2 Case temperature

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

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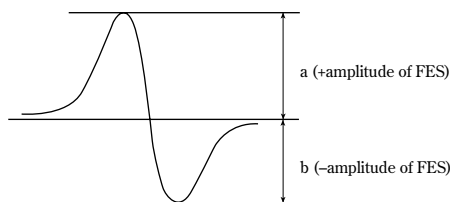
Electro-optical Characteristics

(V_{CC}=5V, V_S=1/2 V_{CC}, T_C=25°C)

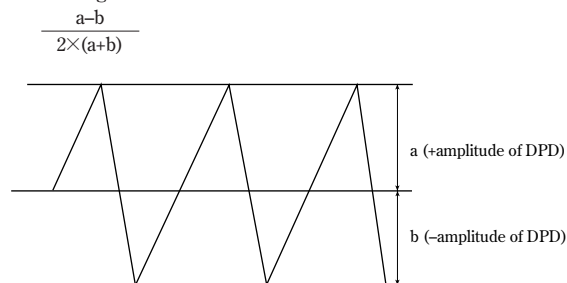
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
#1 Focal offset	DEF	V _{RF} =0.83V	-0.5	-	+0.5	μm
#2 Focal error symmetry	B _{FES}	V _{RF} =0.83V	-25	-	+25	%
#3 Radial error balance	B _{RES}	P _H =3.0mW	-25	-	+25	%
#4 RF output amplitude	V _{RF}	P _H =3.0mW	0.55	0.83	1.11	V
#5 FES output amplitude	V _{FES}	V _{RF} =0.83V	0.38	0.58	0.8	V
Threshold current	I _{th}	-	-	45	-	mA
Operating current	I _{op}	P _H =2.85mW	-	55	-	mA
Operating voltage	V _{op}	P _H =2.85mW	-	2.5	-	V
Wavelength	λ _p	P _H =2.85mW	-	654	-	nm
Output current	I _m	P _H =2.85mW, V _R =15V	-	0.18	-	mA
Differential efficiency	η _d	$\frac{1.9\text{mW}}{I(2.85\text{mW})-I(0.95\text{mW})}$	-	0.5	-	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)



#3 DPD signal

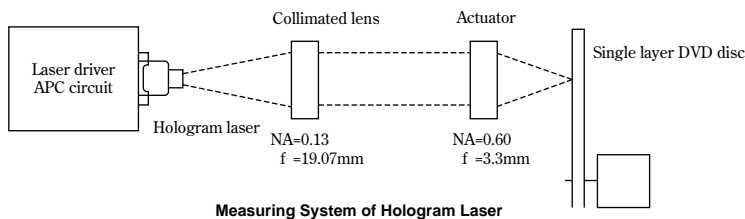


#4 Amplitude of V_A+V_B+V_E+V_F (focal servo ON, radial servo ON)

#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



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

(T_c=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Half intensity angle	Parallel	θ//	P _o =3mW	-	8.5	-	°	
	Perpendicular	θ⊥		-	35	-	°	
Emission characteristics	Deviation angle	Parallel		ø//	-2.1	-	+2.1	°
		Perpendicular		ø⊥	-3	-	+3	°
Misalignment position		Δx	-	-80	-	+80	μm	
		Δy		-80	-	+80	μm	
		Δz		-80	-	+80	μm	
Interference pattern intensity		α	P _o =3mW	-	-	0.97	-	

■ Electrical Characteristics of Monitor Photodiode (Design Standard*)

(T_c=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*1 Sensitivity		S	V _R =15V	-	0.02	-	mA/mW
Dark current		I _D		-	-	150	nA
Terminal capacitance		C _t		-	3.5	-	pF

*1 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	*2 Segment
Supply voltage	V _{CC}	-	4.5	5.0	5.5	V	-
Reference voltage	V _S	V _S =1/2V _{CC}	2.25	2.5	2.75	V	-
Supply current	I _{CC}	V _{CC} =5V	6	-	16	mA	-
*3 Output offset voltage	V _{OD}	V _{CC} =5V, No light	-30	0	+30	mV	V _A , V _B , V _E , V _F
Offset voltage difference	ΔV _{OD}		-30	0	+30	mV	V _A -V _B , V _E -V _F
*4 Response frequency	f _{CF}	V _{CC} =5V, -3dB	40	-	-	MHz	V _A , V _B , V _E , V _F
*5 Peaking level	V _{PK}	f=0.1 to 20MHz, BW=10kHz	-2	-	+2	dB	V _A , V _B , V _E , V _F

*2 Applicable divisions correspond to output terminals.

*3 Difference from V_S

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

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

D5	Segment No.	Output
D1	D 1 + D 3	V _A
D2	D 2 + D 4	V _B
D3	D 5	V _E
D4	D 6	V _F
D6		

* 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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