GH6M005A5B

3mm Thickness Resin Stem Hologram Laser for Playback Only MD Player

■ Features

(1) Super-thin package (3mm thickness) due to insert frame structure

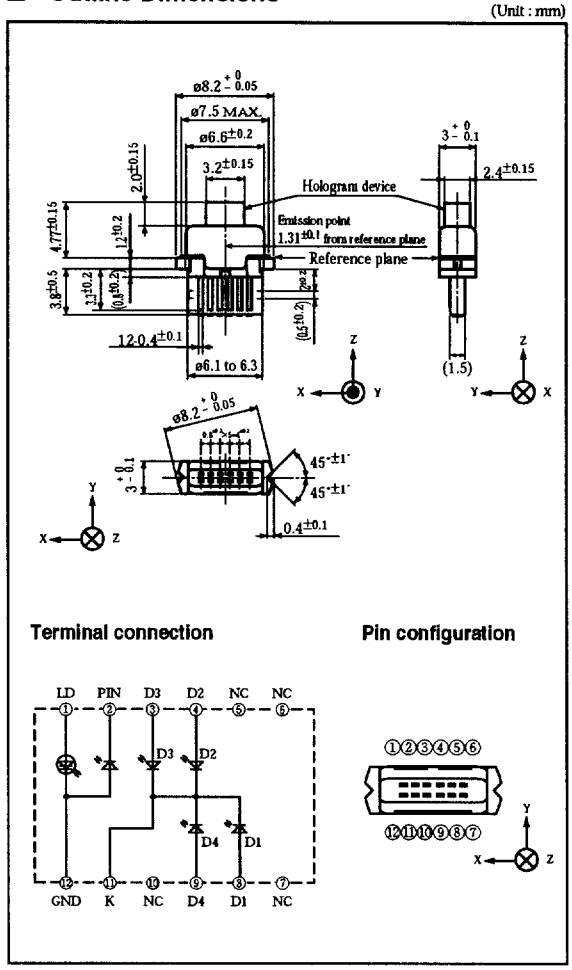
(2) Operating current
Iop : TYP. 28mA

■ Applications

(1) Playback only MD players

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(Tc=25°C)

Parameter		Symbol	Rating	Unit
*1 Optical power output		PH	4.5	mW
Reverse voltage	Laser	VR	2	V
	Photodiode		30	V
	Signal detection photodiode		15	V
*2 Operating temperature		Topr	-10 to +60	°C
*2 Storage temperature		Tstg	-40 to +85	°C
*3 Soldering temperature		Tsold	260	°C

*1 Output power from hologram laser CW (Continuous Wave) drive

*2 Case temperature

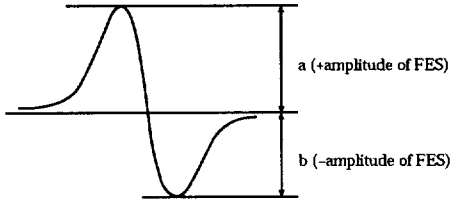
*3 At the position of 1.6mm from the lead base (Within 5s)

■ Electro-optical Characteristics

(Tc=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Focal offset	DEF	Collimated lens output power PCL=1.1mW	-0.5	-	+0.5	μm
*1 Focal error symmetry	BFES		-15	-	+15	%
*2 Radial offset	–		80	-	120	%
*3 FES output amplitude	IFES		2.0	4.2	6.1	μA
*4 Main spot balance	MSB		70	100	130	%
*5 Stray light	–	PH=4mW	-	-	0.1	μA
Threshold current	Ith	–	1	20	30	mA
Operating current	Iop	PH=2.7mW	5	28	40	mA
Operating voltage	Vop		-	1.9	2.2	V
Wavelength	λp		770	780	790	nm
Output current	Im	PH=2.7mW, VR=15V	0.001	-	0.2	mA
Differential efficiency	ηd	$\frac{1.8mW}{I(2.7mW)-I(0.9mW)}$	0.2	0.6	1.0	mW/mA

*1 (a–b) / (a+b)

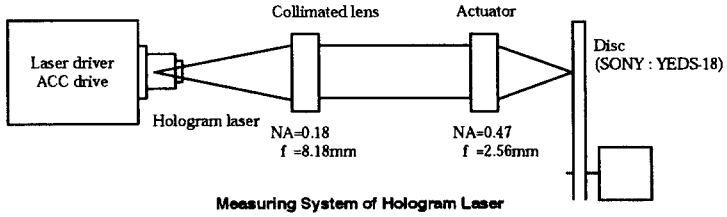


*2 D1 / D4 (focal servo ON)

*3 D2–D3 (Focal vibration)

*4 (D1+D4) / (D2+D3)

*5 Output of D2, D3 when hologram output is 4mW and outside light is cut off.



Measuring System of Hologram Laser

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

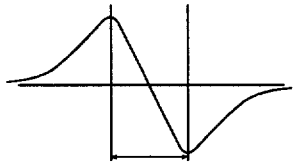
(Tc=25°C)

Parameter	Conditions	MIN.	TYP.	MAX.	Unit
*1 RF output amplitude	P_{CL}=1.1mW	5	8.4	-	μA
*2 RES output amplitude		1	2	3.5	μA
*3 Focal error signal capture range		-	19	-	μm
*4 Focal error noise		-7	-	+7	%
Space between main and sub beam	Disc surface	-	19.7	-	μm

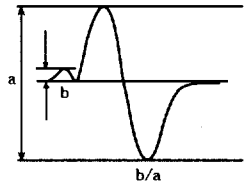
*1 Amplitude of D1+D2+D3+D4 (focal servo ON, radial servo ON)

*2 Amplitude of D1-D4 (focal servo ON)

*3



*4



■ Optical Characteristics of Hologram Device (Design Standard*)

(Tc=25°C)

Parameter	Conditions	MIN.	TYP.	MAX.	Unit
Transmissive wave aberration	-	-	-	λ/8	-
Surface parallelism	-	-	-	5	min.
Hologram diffraction efficiency (0 : 1)	λ_P=780nm	-	80 : 8	-	%
Grating diffraction intensity ratio (0 : 1)		9 : 1	10.5 : 1	12 : 1	-
Grating diffraction intensity ratio (+1 : -1)		0.9	1	1.1	-
Grating rotation angle	to hologram parting line	-	1.16	-	°

■ Electro-optical Characteristics of Laser Diode (Without Hologram Device) (Design Standard*)

(Tc=25°C)

Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Half intensity angle		Parallel	θ//	Po=3mW	9	-	18	°
		Perpendicular	θ⊥		28	-	45	°
Emission characteristics	Deviation angle	Parallel	ø//		-2	-	+2	°
		Perpendicular	ø⊥		-3	-	+3	°
Misalignment position			ΔX, Y, Z	-	-80	-	+80	μm
Kink			LKink		-15	-	+15	%
Interference pattern intensity			α	Po=3mW	-	-	0.95	-
Chip thickness			-	Active layer to chip edge	-	-	55	μm

■ Electrical Characteristics of Monitor Photodiode (Design Standard*)

(Tc=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Dark current	I_D	V_R=15V	-	-	150	nA
Terminal capacitance	C_t		-	9	-	pF

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

(Tc=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Reverse voltage		V_R	I_R=10μA	12.5	-	50	V
Terminal capacitance	D2, D3	C_t	V_R=12.5V, f=1MHz	1.2	-	5	pF
	D1, D4			1.4	-	5.8	
Sensitivity		S	λ_P=780nm	0.4	0.5	0.65	A/W
Response time	D2, D3	tr, tf	V_R=15V, R_L=180Ω	-	10	120	ns
	D1, D4			-	10	200	

* 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"