

TECHNICAL LITERATURE
FOR
VISIBLE LASER DIODE

Model No. LT051series

Model No.

LT051MS

LT051PS

LT051S

DATE February 21, 1998

◆ This technical literature is subject to change without notice. ◆

SHARP CORPORATION
ELECTRONIC COMPONENTS GROUP.

This sheet is technical literature of red laser diode of LT051series.

1. Structure

Laser diode : AlGaInP red laser diode with strained MQW structure ,
prepared with three steps Molecular Beam Epitaxial growth

Photo diode : Si photo diode for laser power control (Note 1)

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Terminal Connections	P.4	P.4	P.4

2. Ratings and Characteristics

2-1 Absolute Maximum Ratings

(T_c=25°C (Note 2))

Parameter		Symbol	Ratings	Units
Optical power output	CW	P _o	30	mW
	Pulse		50 (Note 3)	
Reverse voltage	Laser	V _R	2	V
	PD(Note1)		30	
Operating temperature (case temperature)		T _{opr}	-10 ~ +50	°C
Storage temperature (case temperature)		T _{stg}	-40 ~ +85	

2-2 Electro-optical Characteristics (Note 4)

(T_c=25°C)

Parameter		Symbol	Conditions	Min.	Typ.	Max.	Units
Threshold current		I _{th}	-	-	65	90	mA
Operating current		I _{op1}	P _o =30mW	-	110	135	
Operating voltage		V _{op}		-	2.3	2.7	V
Wavelength		λ _p		635	639	642	nm
Transverse mode		-		TM			-
Radiation Character- istics	Angle	θ	7.0	8.0	9.5	°	
	(Note5)	θ _⊥	21.0	24.0	27.0		
	Ripple	-	-	-	±20	%	
Emission point accuracy	Angle	Δφ	-	-	±2	°	
		Δφ _⊥	-	-	±3		
	Position	ΔX,Y,Z	-	-	±80	μm	
Differential efficiency		η	20mW I(30mW) - I(10mW)	0.45	0.65	-	mW/mA
Visibility		γ	P _o =0~30mW	-	-	1.0	-
Monitor current	LT051MS	I _m (Note 1)	P _o =30mW, V _R =5V	-	0.1	-	mA
	LT051PS			-	0.025	-	

Note 1 Photo diode is not mounted in LT051S.

Note 2 Case temperature

Note 3 Pulse width: 0.4μsec, duty: 0.1%

Note 4 Initial value, CW operation

Note 5 Angle of 50% peak intensity (Full angle at half maximum)

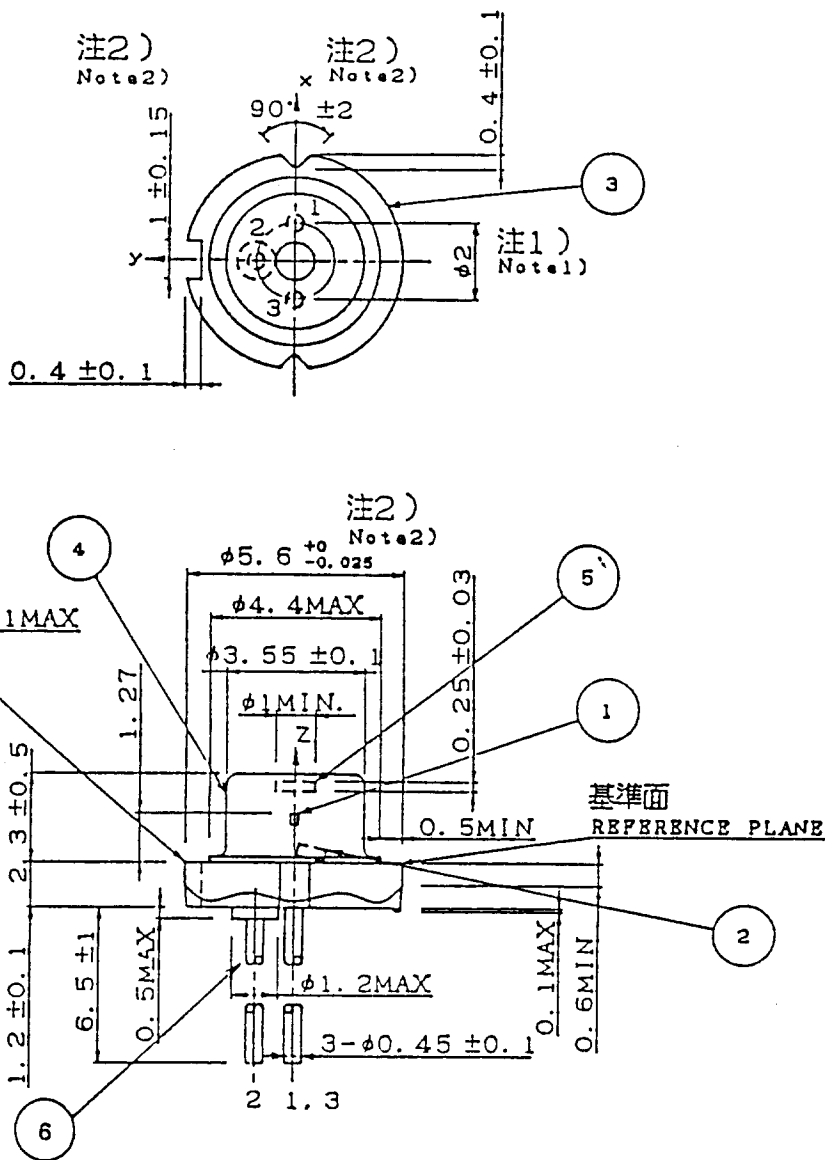
|| : Parallel to the junction plane

⊥ : Perpendicular to the junction plane

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2. Outline Dimensions



注1)リード根元寸法

Note1) Dimension at the bottom of leads

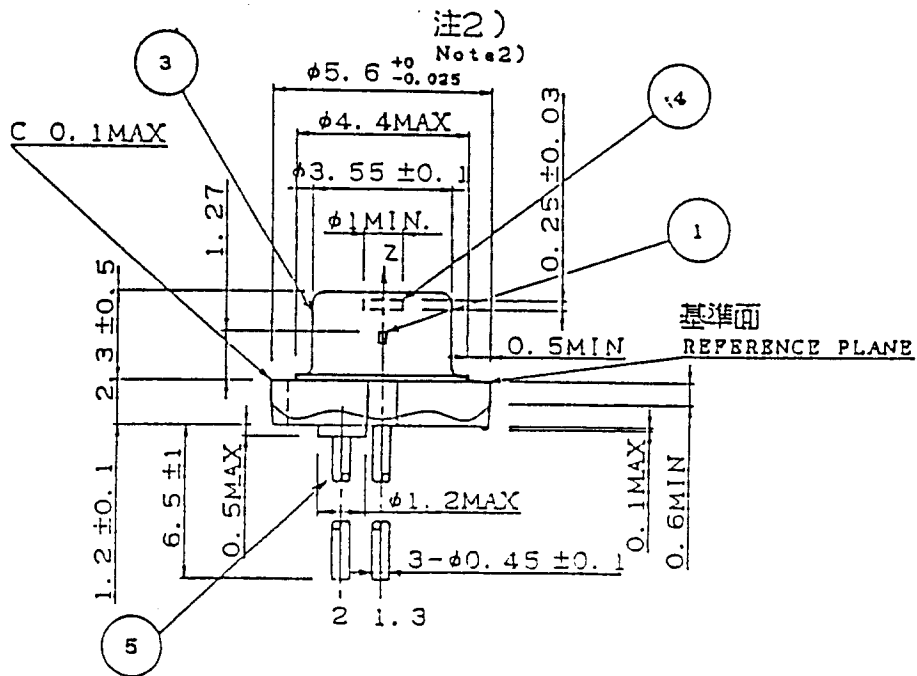
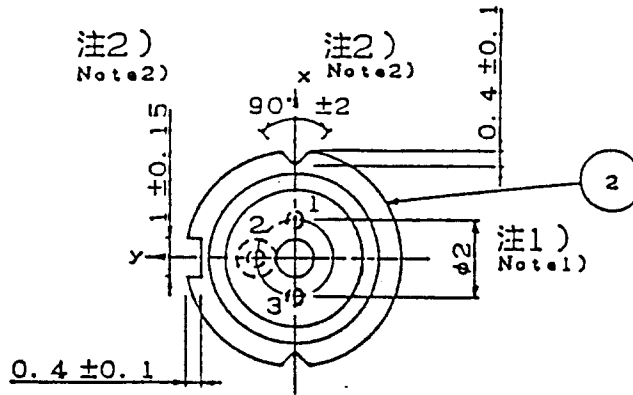
注2)この寸法は基準面より0.6mm下までの範囲でのみ有効です。

Note2) These dimensions are valid only

in the range of 0~0.6mm below from the reference plane.

番号 No.	構成部品 COMPONENT	材質 MATERIAL	仕上 FINISH	一般公差 ± 0.2 GENERAL TOLERANCES ± 0.2	
1	レーザダイオードチップ LASER CHIP	AlGaInP	—	尺度 SCALE	単位 UNIT
2	フォトダイオードチップ Photodiode Chip	Si	—		
3	ステム Stem	Fe	金めっき gold-plated	5/1	mm
4	キャップ Cap	コバルト Kovar	ニッケルめっき nickel-plated	名称 NAME	外形及び端子接続 OUTLINE DIMENSIONS AND PIN CONNECTIONS
5	窓ガラス Window Glass	硼硅酸 Borosilicate glass	n=1.48		
6	リードピン leadpins	コバルト Kovar	金めっき gold-plated	図番 DRAWING No.	5G94404

2. Outline Dimensions



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Note1) Dimension at the bottom of leads

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In the range of 0-0.6mm below from the reference plane.

一般公差±0.2

GENERAL TOLERANCES ±0.2

番号 No.	構成部品 COMPONENT	材質 MATERIAL	仕上 FINISH	尺法 SCALE		単位 UNIT
1	レーザダイオードチップ LASER CHIP	AlGaInP	—	尺法 SCALE		単位 UNIT
2	ステム Stem	Pe	金のつき gold-plated	5/1		mm
3	キャップ Cap	コバルト Kovar	ニッケルのつき nickel-plated	名称 NAME	外形及び端子接続 OUTLINE DIMENSIONS AND PIN CONNECTIONS	
4	窓ガラス Window Glass	珪酸ガラス Borosilicate glass	n=1.49			
5	リードピン leadpins	コバルト Kovar	金のつき gold-plated	図番 DRAWING No.	5G94404	

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Terminal Connections

