

## GaAlAs Laser Diode

### Description

The SLD105VL is a low current consumption GaAlAs laser diode developed for CD.

### Features

- Low current consumption
- Small package ( $\phi$  5.6 mm)

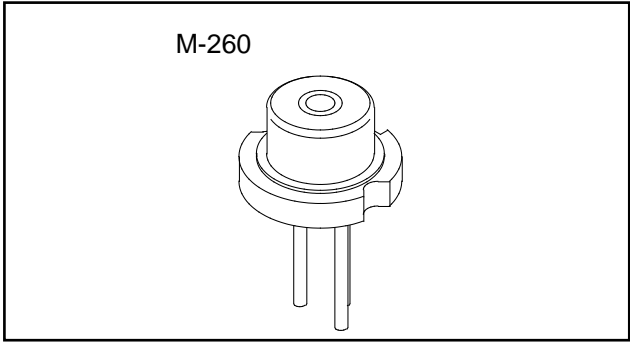
### Applications

- Pickup for portable CD

### Structure

- GaAlAs double hetero structured laser diode
- Pin photodiode for optical power output monitor

**Recommended Operating Optical Power Output**  
2.5 mW



### Absolute Maximum Ratings (Ta=25 °C)

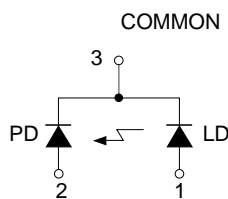
- Optical power output  $P_o$  5 mW
- Reverse voltage  $V_R$ 

LD	2	V
PD	15	V
- Operating temperature
 

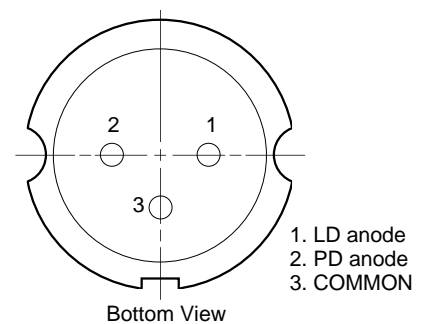
$T_{opr}$	-10 to +60	°C
-----------	------------	----
- Storage temperature
 

$T_{stg}$	-40 to +85	°C
-----------	------------	----

### Connection Diagram



### Pin Configuration

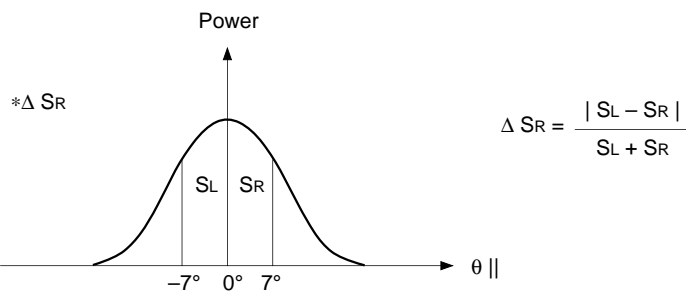


Sony reserves the right to change products and specifications without prior notice. This information does not convey any license by any implication or otherwise under any patents or other right. Application circuits shown, if any, are typical examples illustrating the operation of the devices. Sony cannot assume responsibility for any problems arising out of the use of these circuits.

Optical and Electrical Characteristics (T<sub>c</sub>=25 °C)

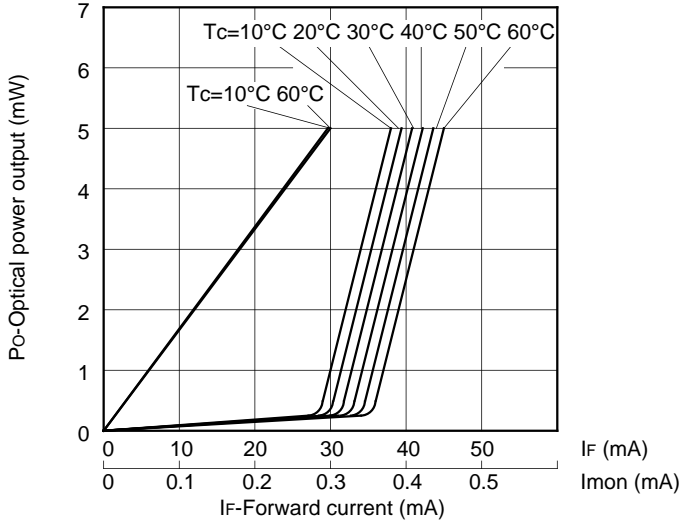
T<sub>c</sub> : Case temperature

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit	
Threshold current	I <sub>th</sub>			30	41	mA	
Operating current	I <sub>op</sub>	P <sub>O</sub> =2.5 mW		35	44	mA	
Operating voltage	V <sub>op</sub>	P <sub>O</sub> =2.5 mW	1.7	1.9	2.5	V	
Oscillation wavelength	λ <sub>p</sub>	P <sub>O</sub> =2.5 mW	760	790	810	nm	
Monitor current	I <sub>m</sub>	P <sub>O</sub> =2.5 mW V <sub>R</sub> =0 V	0.08	0.15	0.4	mA	
Radiation angle	Perpendicular	θ ⊥	P <sub>O</sub> =2.5 mW	20	39	45	degree
	Parallel	θ //		8	12	21	degree
	Symmetry of θ //	ΔS <sub>R</sub> *				30	%
Positional accuracy	Position	ΔX, ΔY, ΔZ	P <sub>O</sub> =2.5 mW			±150	μm
	Angle	Δ θ				±3	degree
Differential efficiency	η <sub>D</sub>	P <sub>O</sub> =2.5 mW	0.2	0.6	0.7	mW/mA	
Astigmatism	A <sub>s</sub>	Z // -Z ⊥	-30	-25	-20	μm	
S/N ratio	S/N	f <sub>c</sub> =720 kHz Δf=30 kHz P <sub>O</sub> =2.5 mW		85			
PD dark current	I <sub>D</sub>	V <sub>R</sub> =5 V			150	nA	
PD capacitance between pins	C <sub>T</sub>	V <sub>R</sub> =5 V, f=1 kHz			30	pF	

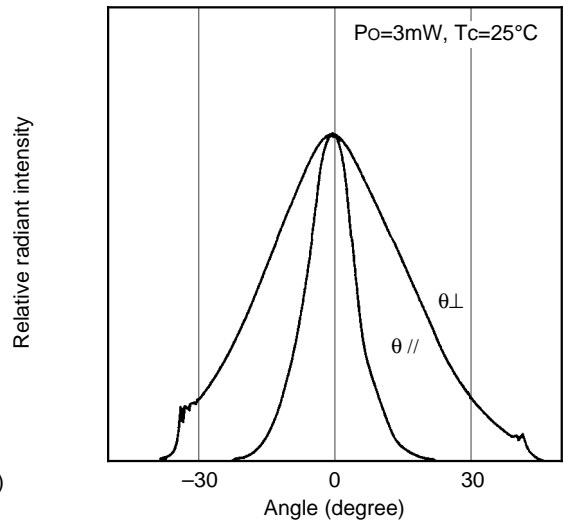


Example of Representative Characteristics

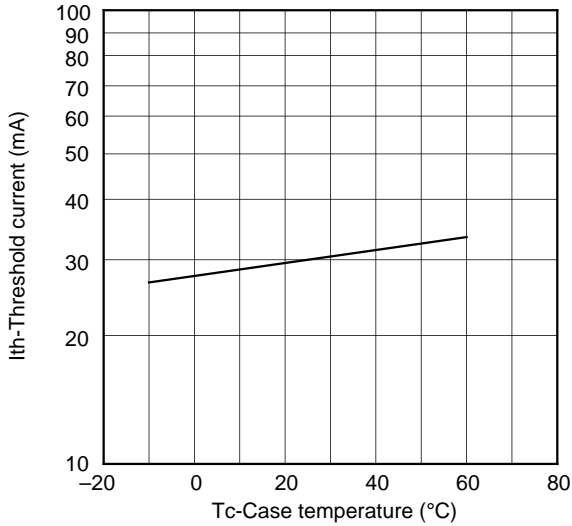
Optical power output vs. Forward current characteristics



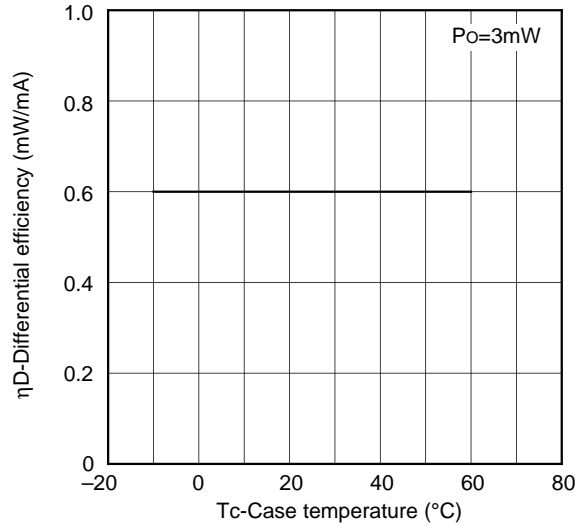
Far field pattern (FFP)



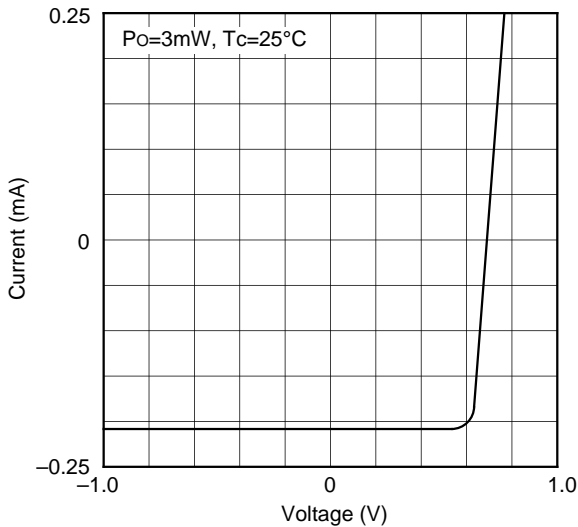
Threshold current vs. Temperature characteristics



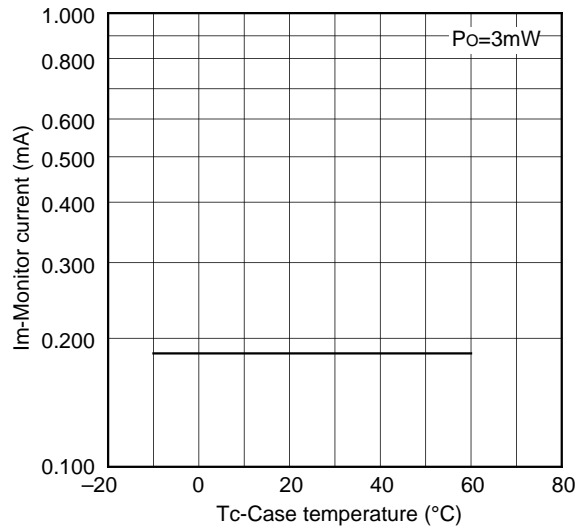
Differential efficiency vs. Temperature characteristics



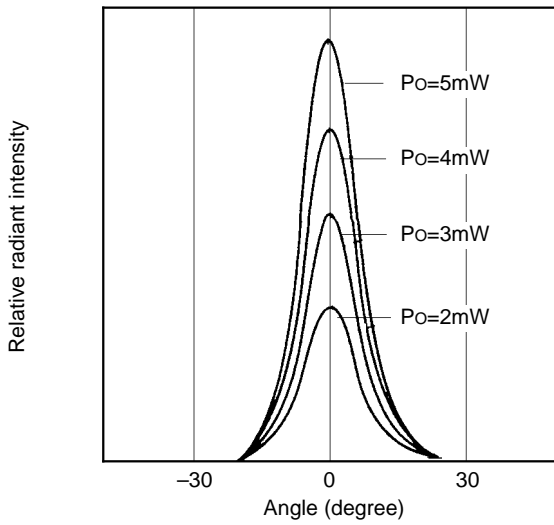
PIN diode voltage current characteristics



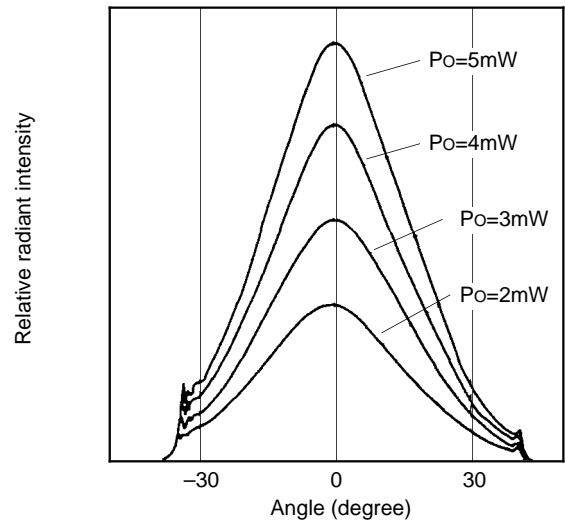
Monitor current vs. Temperature characteristics



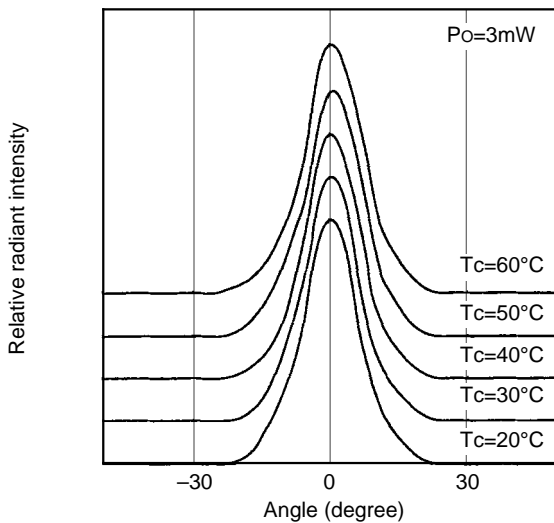
Optical power output dependence of far field pattern  
(Parallel to junction)



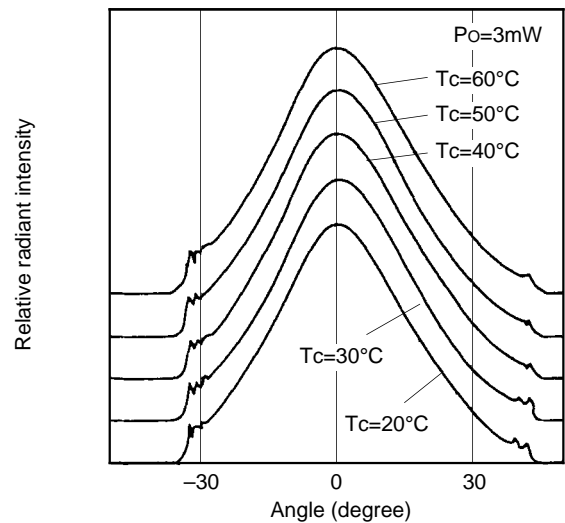
Optical power output dependence of far field pattern  
(Perpendicular to junction)



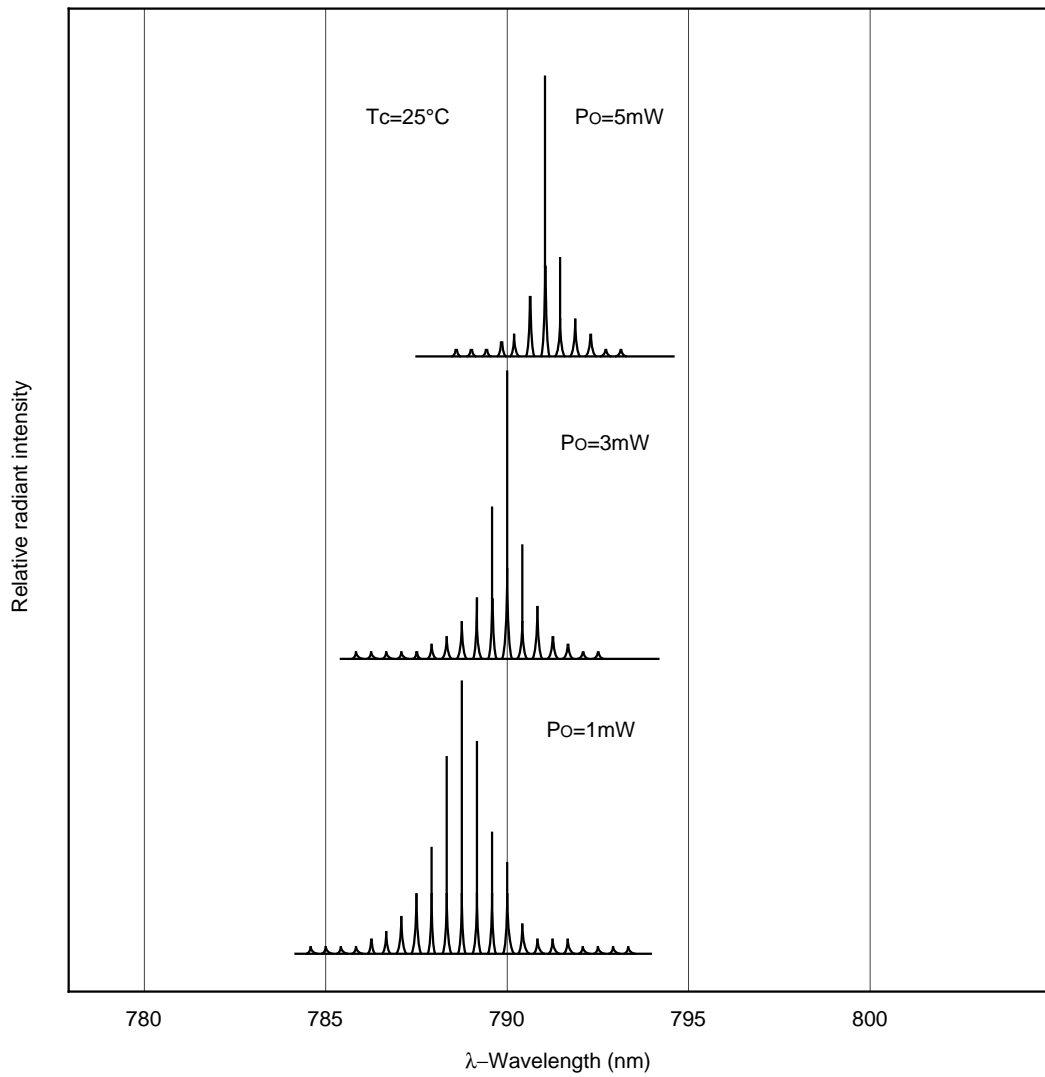
Temperature dependence of far field pattern  
(Parallel to junction)



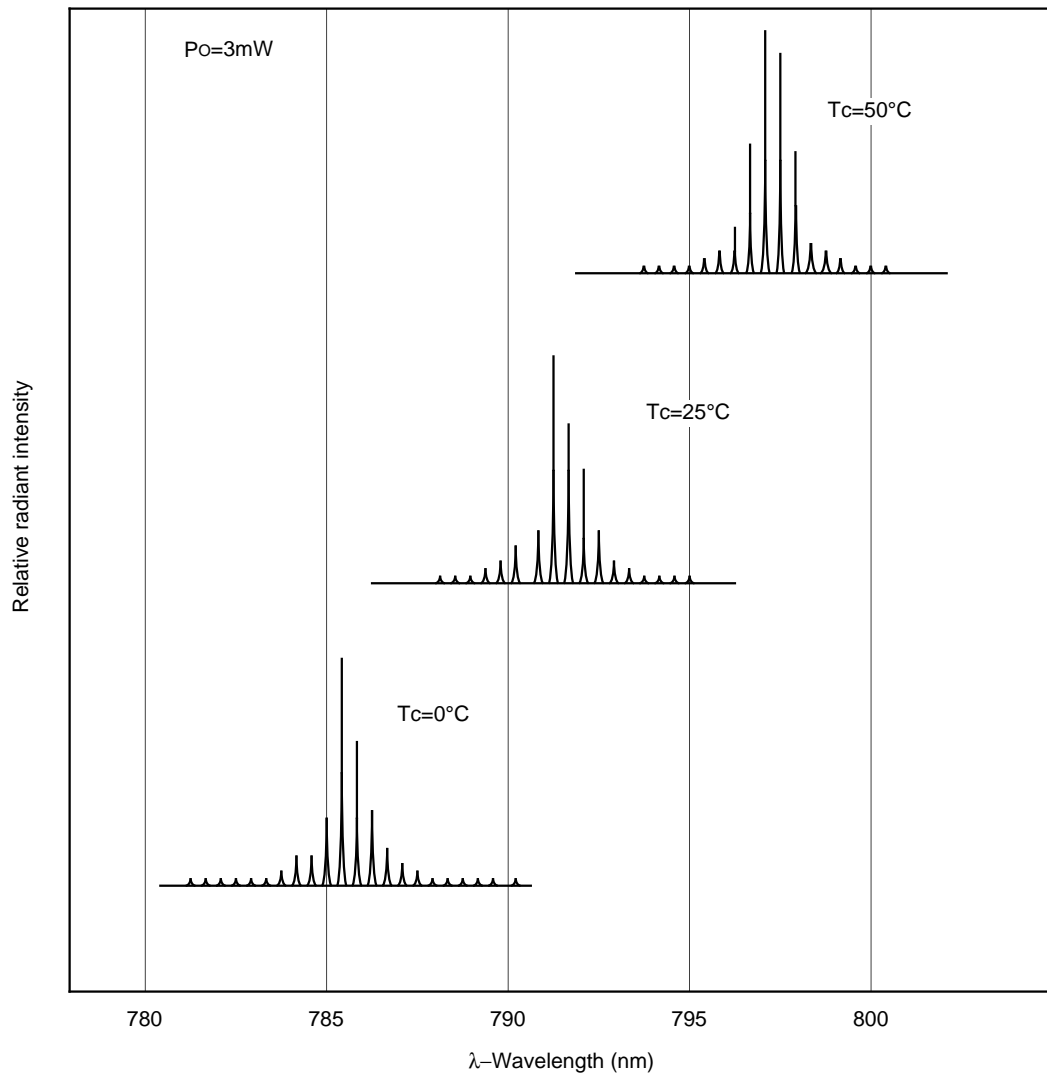
Temperature dependence of far field pattern  
(Perpendicular to junction)



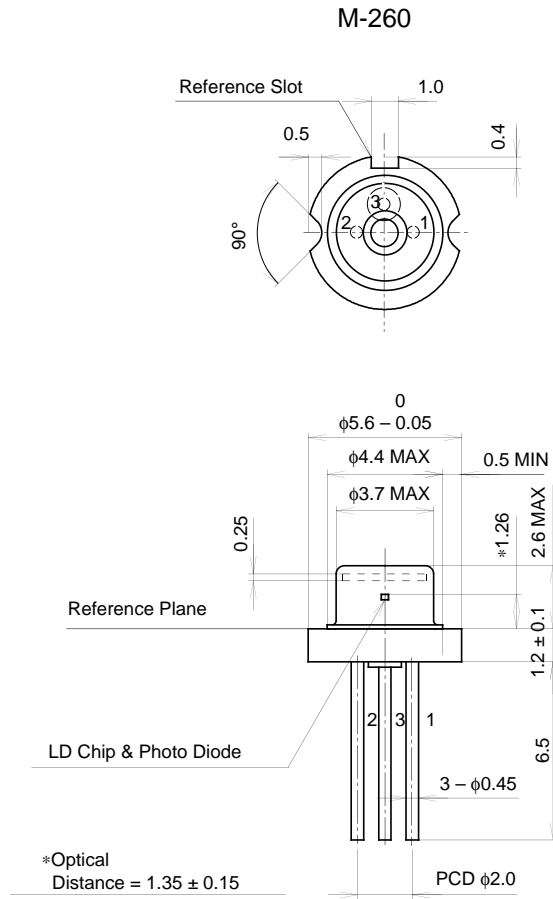
Optical power output dependence of spectrum



Temperature dependence of spectrum



Package Outline Unit : mm



SONY CODE	M-260
EIAJ CODE	_____
JEDEC CODE	_____

PACKAGE WEIGHT	0.3g
----------------	------