

520nm 80mW 60°C Laser Diode in TO-18 ϕ 5.6mm Package

Part No. LD520A80C16

FEATURES

- 520nm 80mW Green Laser Diode
- Package: TO-18 (dia. 5.6mm)
- TE oscillating transverse mode

APPLICATIONS

- OA equipment
- Audio visual equipment
- Home appliance
- Telecommunication equipment (Terminal)
- Measuring equipment
- Tooling machines
- Computers

ABSOLUTE MAXIMUM RATINGS ($T_c = 25^\circ\text{C}$ ⁽¹⁾)

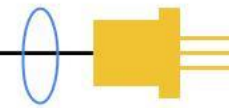
Parameter	Symbol	Condition	Rating	Unit
Optical output power	P_o	CW	35	mW
Reverse voltage (LD)	V_{RL}	-	2	V
Reverse voltage (PD)	V_{RD}	-	30	V
Operating temperature (Case temperature)	$T_{op(c)}$	CW	-10 to +60	$^\circ\text{C}$
Storage temperature	T_{stg}	-	-40 to +85	$^\circ\text{C}$
Soldering temperature ⁽²⁾	T_{sld}	-	350	$^\circ\text{C}$

Notes:

1. T_c : Case temperature (T_c measurement point is referenced to P3 drawing).
2. Soldering temperature means soldering iron tip temperature while soldering. Soldering position is 1.6mm apart from bottom edge of the case (Immersion time: $\leq 3\text{s}$).

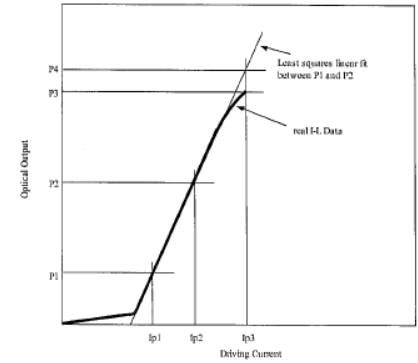
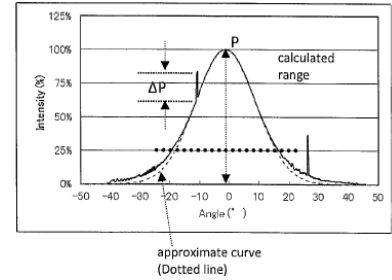
ELECTRICAL AND OPTICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$ ⁽¹⁾)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold current	I_{th}	-	50	80	mA	
Operating current	I_{op}	-	150	185	mA	$P_o = 80\text{mW}$
Operating voltage	V_{op}	-	6.5	7	V	$P_o = 80\text{mW}$
Wavelength	λ_p	515	520	530	nm	$P_o = 80\text{mW}$
Half Intensity Angle (Parallel) ⁽²⁾⁽³⁾	$\Theta_{//}$	5	7	9	deg	$P_o = 80\text{mW}$
Half Intensity Angle (Perpendicular) ⁽²⁾⁽³⁾	Θ_{\perp}	20.5	23	25.5	deg	$P_o = 80\text{mW}$
Ripple ⁽³⁾⁽⁴⁾	R12	-	-	30	%	$P_o = 80\text{mW}$
Misalignment angle (Parallel) ⁽³⁾	$\Delta \Theta_{//}$	-3	0	+3	deg	$P_o = 80\text{mW}$
Misalignment angle (Perpendicular) ⁽³⁾	$\Delta \Theta_{\perp}$	-3	0	+3	deg	$P_o = 80\text{mW}$
Differential Efficiency	η_d	0.55	0.80	-	mW/mA	$\frac{70\text{mW}}{I(80\text{mW}) - I(10\text{mW})}$
Kink ⁽⁵⁾	K-LI	0	-	20	%	$P_1=17\text{mW}, P_2=51\text{mW}, P_3=85\text{mW}$
Monitor current	I_m	0.2	0.5	0.8	mA	$P_o = 80\text{mW}, V_{rd}=5\text{V}$



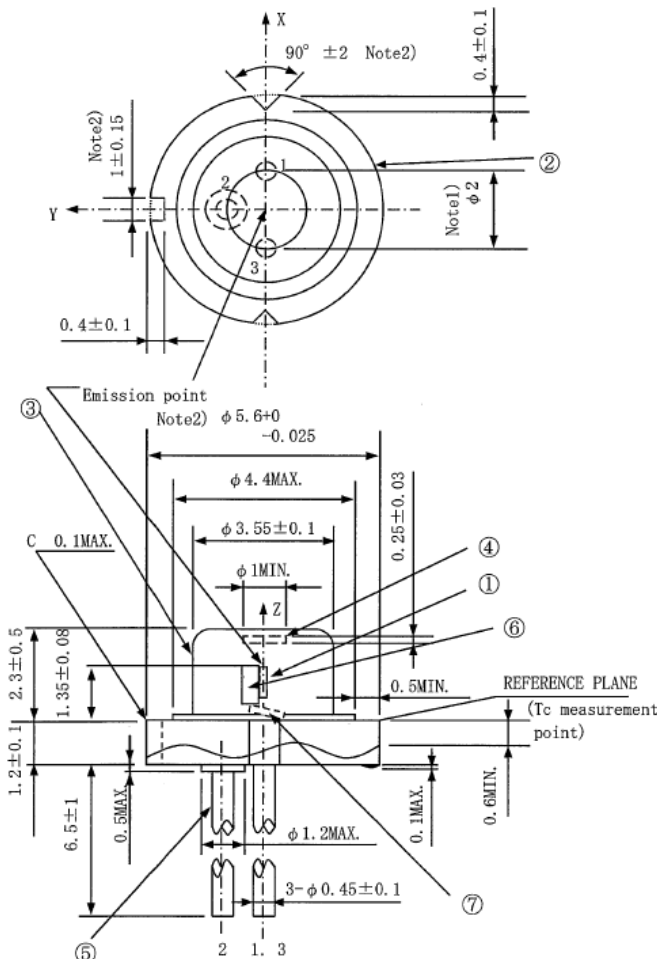
Notes:

1. Initial value, Continuous Wave operation
2. Angle of 50% peak intensity (Full angle at half-maximum)
3. Parallel to the junction plane (X-Z plane); Perpendicular to the junction plane (Y-Z plane)
4. $RI2 = \Delta P/P$
 ΔP : the maximum deviation of the far field pattern from its approximate curve
 P : the peak of the approximate curve
 - Approximate curve is calculated from the measuring data within the center area at 40% peak value.
 - ΔP is calculated on the area within the center area at 25% peak value.
5. Definition of K-LI: $K-LI = (P4-P3) / P3$

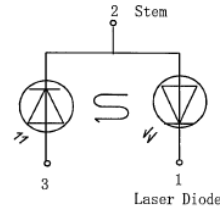


MECHANICAL OUTLINE (unit: mm)

General Tolerances $\pm 0.2\text{mm}$



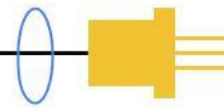
Pin Configuration



No.	Component	Material	Finish
1	Laser Diode Chip	InAlGaN	-
2	Stem	Fe+Cu	Gold-plated
3	Cap	45Alloy	Nickel+Pd plated
4	Window glass	Borosilicated glass	-
5	Lead pins	Kovar	Gold-plated
6	Submount/Solder	AlN/AuSn or Ag paste	Gold-plated
7	Photodiode	Si	-

Notes:

1. Dimension of the bottom of leads.
2. These dimensions are valid only in the range of 0~0.6mm below from the reference plane.



ADDITIONAL NOTES

- Do not operate the device above maximum ratings. Doing so may cause unexpected and permanent damage to the device.
- Take precautions to avoid electrostatic discharge and/or momentary power spikes. A change in the characteristics of the laser or premature failure may result.
- Proper heat sinking of the device assures stability and lifetime. Always ensure that maximum operating temperatures are not exceeded.
- Observing visible or invisible laser beams with human eye directly, or indirectly, can cause permanent damage. Use a camera to observe the laser.
- No laser device should be used in any application or situation where life or property is at risk in the event of device failure.
- Specifications are subject to change without notice. Ensure that you have the latest specification by contacting us prior to purchase or use of the product.