



# 405nm 300mW Laser Diode, ø5.6mm (TO-18) Package LD405E300C05

## Data Sheet

### Features

- Multimode 405nm 300mW Blue Violet Laser Diode
- Optical output power: 300mW CW
- High temperature operation: 50°C
- Without monitoring PD
- TE oscillating transverse mode
- Package: ø5.6mm, TO-18 can

### Applications

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

### Absolute Maximum Ratings ( $T_C = 25\text{ }^\circ\text{C}$ )

PARAMETER	SYMBOL	RATING	UNIT	CONDITION
Optical output power	$P_o$	350	mW	CW
	$P_p$			Pulse <sup>(1)</sup>
Reverse voltage (LD)	$V_{RL}$	2	V	-
Operating temperature (Case temperature)	$T_{op(c)}$	0 to +50	°C	CW
	$T_{op(c)}$			Pulse <sup>(1)</sup>
Storage temperature	$T_{stg}$	-40 to +85	°C	-
Soldering temperature <sup>(2)</sup>	$T_{sld}$	350	°C	-

#### Notes:

1. Pulse: Pulse Operation (Pulse Width 0.2us, Duty: 50%)
2. Soldering temperature means soldering iron tip temperature while soldering. Soldering position is 1.6mm apart from bottom edge of the case (Immersion time: ≤3s).

### Electrical and Optical Characteristics ( $T_C = 25\text{ }^\circ\text{C}$ , CW unless otherwise stated)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITION
Threshold current	$I_{th}$	-	140	200	mA	
Operating current	$I_{op}$	250	325	400	mA	$P_o = 300\text{mW}$
Operating voltage	$V_{op}$	-	4.5	5.5	V	$P_o = 300\text{mW}$
Wavelength	$\lambda_p$	400	406	414	nm	$P_o = 300\text{mW}$
1/e <sup>2</sup> Intensity Angle (Parallel) <sup>(1)</sup>	$\Theta_{//}$	8	14	20	deg	$P_o = 300\text{mW}$
1/e <sup>2</sup> Intensity Angle (Perpendicular) <sup>(1)</sup>	$\Theta_{\perp}$	36	41	48	deg	$P_o = 300\text{mW}$
Parallel FFP deviation angle <sup>(2)</sup>	$\Delta \Theta_{//}$	-3	-	+3	deg	$P_o = 300\text{mW}$
Perpendicular FFP deviation angle <sup>(2)</sup>	$\Delta \Theta_{\perp}$	-4	-	+4	deg	$P_o = 300\text{mW}$
Slope Efficiency	$\eta_d$	1.4	1.8	2.2	mW/mA	$\frac{120\text{mW}}{I(300\text{mW}) - I(180\text{mW})}$
Polarization angle		-5	-	5	deg	$P_o = 50\text{mW}$ , NA=0.13
Polarization ratio	$P_1$	100	-	-	-	$P_o = 50\text{mW}$ , NA=0.13
Pulse operating current <sup>(3)</sup>	$P_{lop}$	-	-	700	mA	$P_p = 700\text{mW}$
Difference rate of $\eta_p$	$\Delta \eta_p$	-	-	700	mA	$P_p = 50\text{~}700\text{mW}$

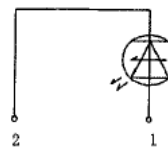
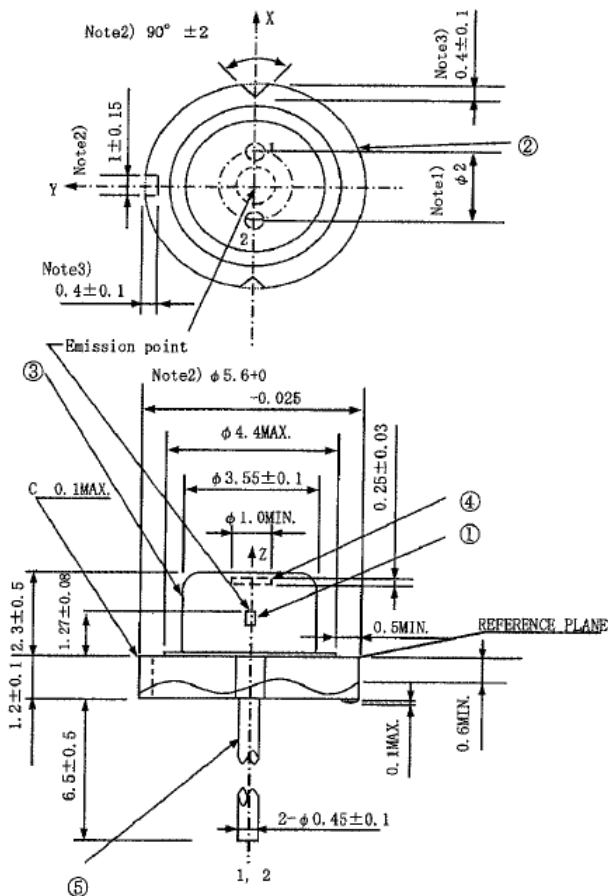
#### Notes:

1. Full angle of 13.5% (=1/e<sup>2</sup>) peak intensity
2. Misalignment angle of 13.5% (=1/e<sup>2</sup>) peak intensity
3. Pulse: Pulse Operation (Pulse Width 0.2us, Duty: 50%)

Mechanical Outline (unit: mm)

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

PIN CONFIGURATION



#### 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.