



3000mW 405nm Laser Diode

Features

- Optical output power: 3000 mW (CW)
- Violet Lasing: 405 nm Typ.
- Low operating current: 1.8 A Typ.
- Package: Φ 9 mm
- Multiple transverse mode
- TE mode oscillation

Application

- Direct imaging
- Industry
- Bio & Medical

1. PRODUCT STANDARDS

1.1 Absolute Maximum Ratings

Item	Symbol	Value	Unit
Optical output power (CW)	Po	3.3	W
Reverse voltage	Vr	5.0	V
Operating case temperature ¹⁾	Tc	0~+50	°C
Storage temperature	Tstg	-40~+85	°C

1) Operating temperature is defined as the temperature at the bottom of the metal package.



3W 405nm Laser Diode

1.2 Electrical and Optical Specifications

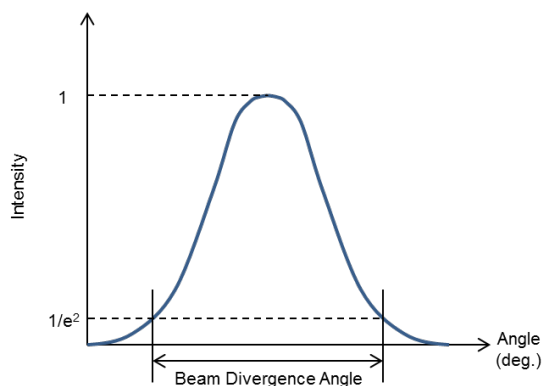
(CW, T_c=25±3 °C)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Threshold Current	I _{th}	—	—	0.43	0.53	A
Operating Current	I _{op}	P _o =3.0W	1.6	1.8	2.2	A
Operating Voltage	V _{op}	P _o =3.0W	—	4.7	5.5	V
Slope efficiency ²⁾	S _e	P _o =0.2~3.0W	1.8	2.2	2.6	W/A
Peak Wavelength	λ	P _o =3.0W	395	402	405	nm
Beam Divergence Angle ³⁾ (Parallel to the junction)	θ _h	P _o =3.0W	8	13	20	deg
Beam Divergence Angle ³⁾ (Perpendicular to the junction)	θ _v	P _o =3.0W	36	41	46	deg
Angle Accuracy of Beam Center ⁴⁾ (Parallel to the junction)	θ _x	P _o =3.0mW	-3	-	+3	deg
Angle Accuracy of Beam Center ⁴⁾ (Perpendicular to the junction)	θ _y	P _o =3.0W	-3	-	+3	deg

2) Slope efficiency is defined in the following:

$$S_e = (3.0 - 0.2) / (I_{op@3.0W} - I_{op@0.2W})$$

3) Beam divergence angle is indicated by full width at 1/e² of the peak intensity.

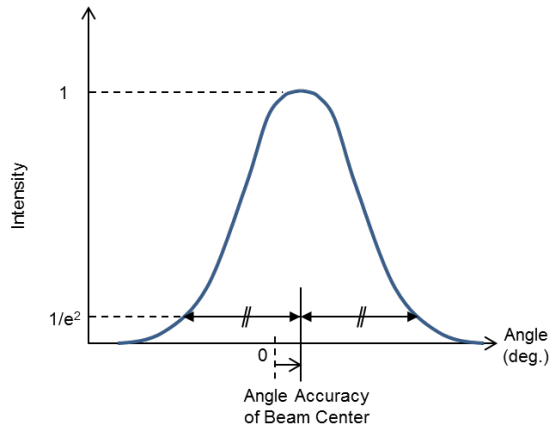




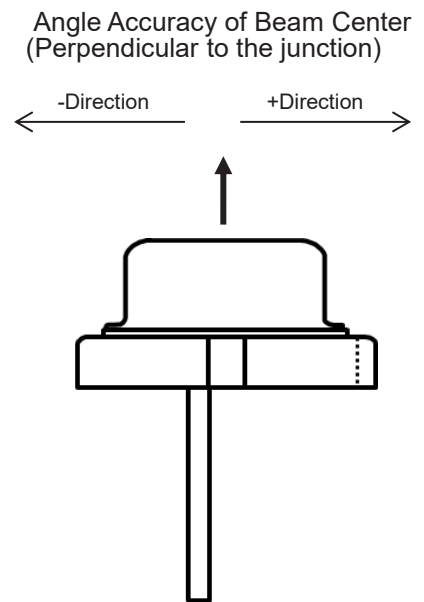
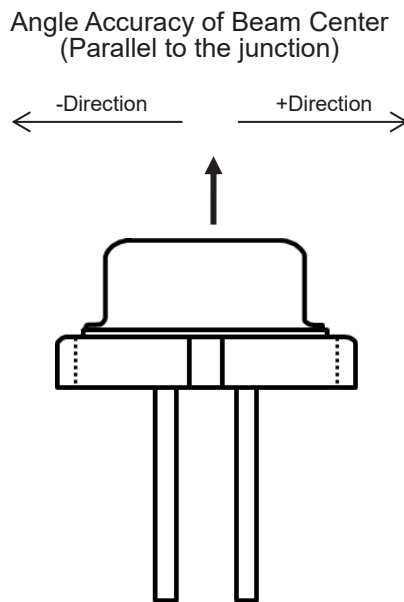
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4) Angle accuracy of beam center is defined in the following:

- (i) Beam center is defined as the midpoint between the two angles where light intensity falls at $1/e^2$ of its maximum value of the far-field pattern.



- (ii) Directions of the beam angles are defined in the following way:

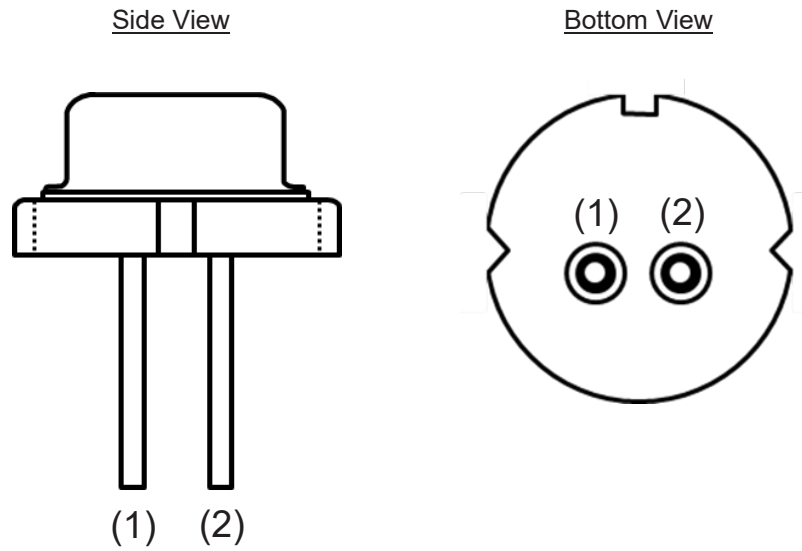




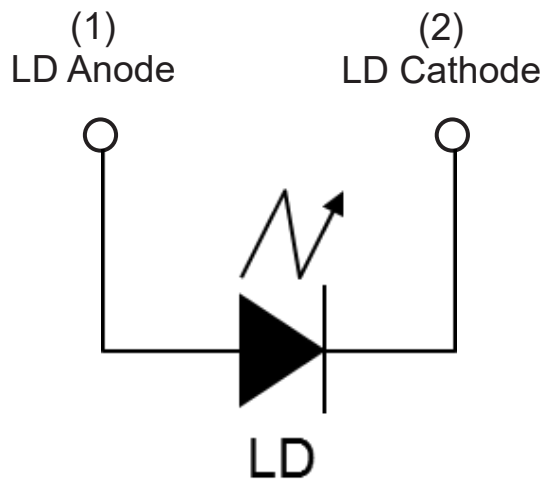
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2. PIN CONNECTION

2.1 Outline



2.2 Equivalent Circuit

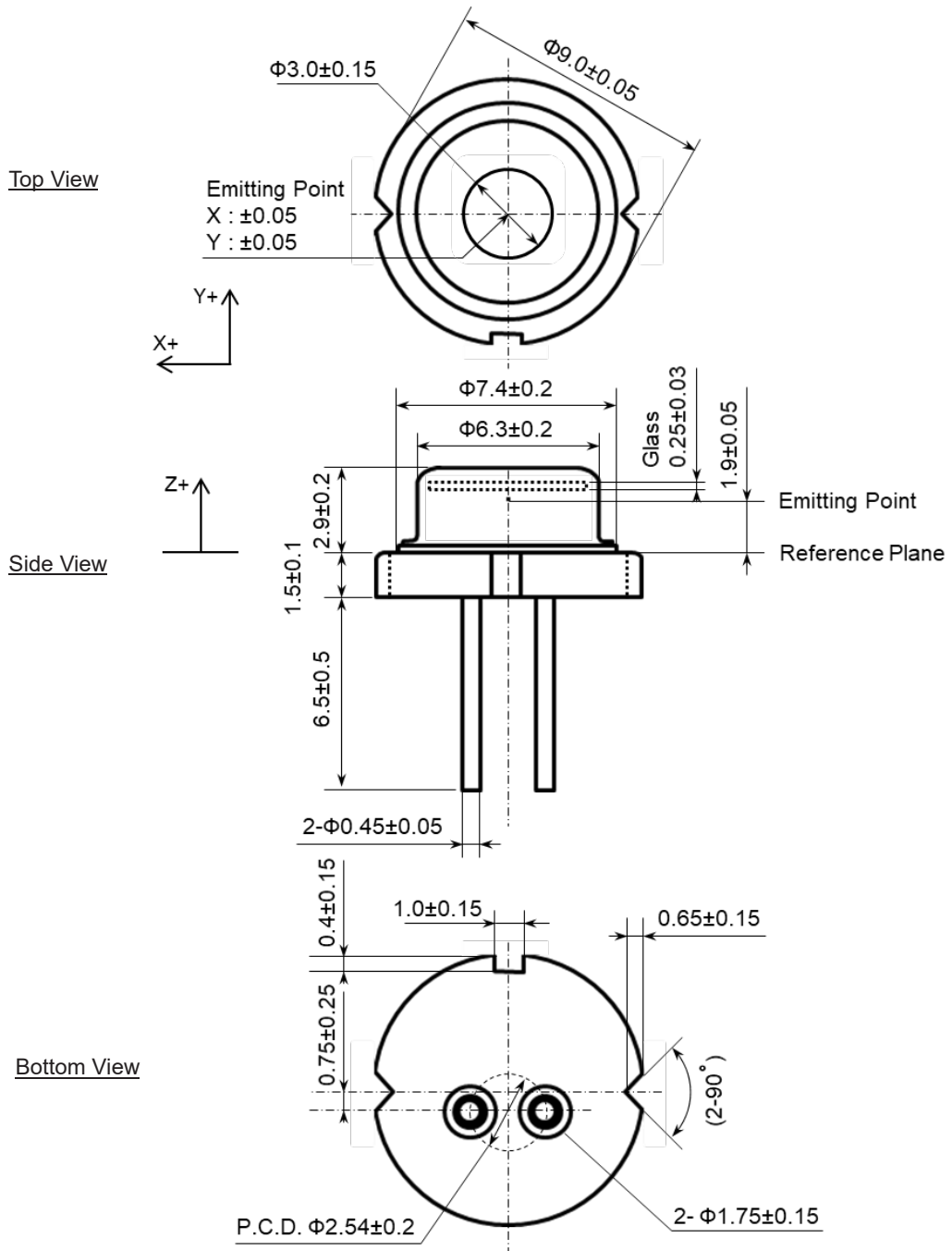




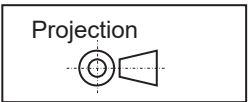
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3. PACKAGE APPEARANCE SPECIFICATIONS

3.1 Outline Dimensions



Note
1. X-Y tolerance of lead is specified on the plane of package bottom.
2. Unit: mm





Sicherheitshinweise

Bei diesem Laser handelt es sich um ein Klasse 4 Produkt in OEM Ausführung. Die Ausführung OEM bedeutet, dass der Laser nicht als Fertiggerät anzusehen ist, sondern ausschließlich zur Integration in Maschinen vorgesehen ist.

Besondere Sicherheitsvorkehrungen hinsichtlich des Arbeitsschutzes und der Unfallverhütungsvorschriften sind zu beachten.

Der Laser muss so montiert werden, dass die Strahlung weder Menschen, Tiere noch Gegenstände außerhalb des Bearbeitungsraums treffen kann, z.B. lichtundurchlässige (300-500nm) Gehäuse.

Der Betrieb ist nur unter Aufsicht eines Laserschutzbeauftragten und unter Beachtung aller arbeitssicherheitsrelevanten Vorschriften zulässig.

Abweichungen von Unfallverhütungsvorschriften können zu Körper- bzw. Sachschäden führen.

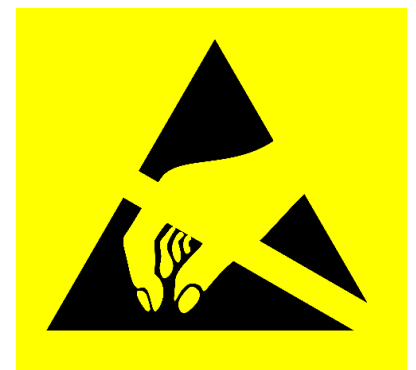
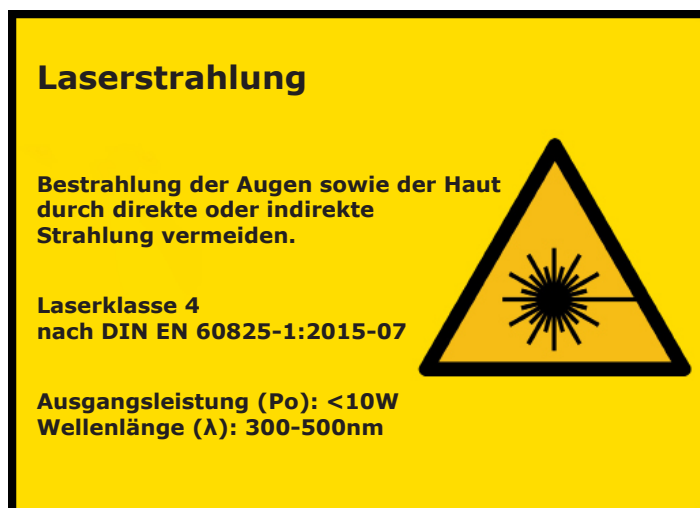
Die Maschine ist so auszulegen, dass in keinem Fall Laserstrahlung nach außen dringen kann.

Relevante, jedoch möglicherweise nicht ausschließlich geltende Normen:

DIN EN 12254:2010-07

DIN EN 60825-1:2015-07

DIN EN 60825-4





Safety Notes

This is a Class 4 OEM laser product. OEM product is intended to be incorporated into a device. It may not meet safety requirements given by the law.

Safety precautions are to be taken prior to use this laser.

Avoid eye or skin exposure. Laser radiation must be prevented from leaving the laser working area. Use appropriate shield to block the laser light.

Relevant but not only applicable regulations:

DIN EN 12254:2010-07

DIN EN 60825-1:2015-07

DIN EN 60825-4

