

# OSRAM PLT5 520EB\_P

## Datasheet

Preliminary datasheet version

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Tobelbader Strasse 30, 8141 Premstaetten, Austria

Phone +43 3136 500-0

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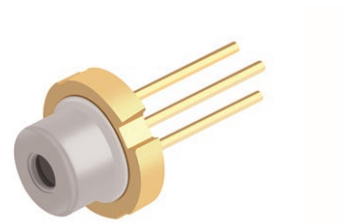
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## Metal Can TO56

# PLT5 520EB\_P

Green Laser Diode in TO56 Package



## Applications

- Appliances & Tools
- Entertainment
- Functional Illumination
- Medical Imaging
- Outdoor & Industrial Lighting
- Projection
- Visualization

## Features

- Optical output power (continuous wave): 20 mW ( $T_c = 25^\circ\text{C}$ )
- Typical emission wavelength: 520 nm
- Efficient radiation source for cw and pulsed operation
- Single mode semiconductor laser
- High modulation bandwidth
- TO56 package with photo diode

Ordering Information

| Type         | Peak output power<br>typ.<br>$P_{opt}$ | Ordering Code |
|--------------|--|---------------|
| PLT5 520EB_P | 20 mW                                  | Q65113A4961   |

Maximum Ratings

| Parameter  | Symbol    |      | Values |
|--|-----------|------|--------|
| Operating temperature                                      | $T_{op}$  | min. | -20 °C |
|  |           | max. | 60 °C  |
| Storage temperature  | $T_{stg}$ | min. | -40 °C |
|  |           | max. | 85 °C  |
| Peak output power<br>$T_{case} = 25\text{ °C}$             | $P_{opt}$ | max. | 25 mW  |
| Reverse voltage <sup>1)</sup><br>$T_{case} = 25\text{ °C}$ | $V_R$     | max. | 2 V    |
| Soldering temperature<br>$t_{max} = 10\text{ sec}$         | $T_S$     | max. | 260 °C |

Operation outside these conditions may damage the device. Operation at maximum ratings may influence lifetime.

Characteristics

$P_{opt} = 20 \text{ mW}$ ;  $T_c = 25 \text{ }^{\circ}\text{C}$

| Parameter   | Symbol           | Values |                   |
|---|------------------|--------|-------------------|
| Operating current <sup>2)</sup>                     | $I_{op}$         | typ.   | 65 mA             |
|   |                  | max.   | 78 mA             |
| Operating voltage <sup>3)</sup>                     | $V_{op}$         | typ.   | 5.4 V             |
|   |                  | max.   | 6.1 V             |
| Peak wavelength <sup>4)5)</sup>                     | $\lambda_{peak}$ | min.   | 510 nm            |
|   |                  | typ.   | 520 nm            |
|   |                  | max.   | 530 nm            |
| Spectral bandwidth (FWHM)                           | $\Delta\lambda$  | typ.   | 1 nm              |
| Beam divergence (FWHM) parallel to pn-junction      | $\Theta_{  }$    | min.   | 6 °               |
|   |                  | typ.   | 8 °               |
|   |                  | max.   | 10 °              |
| Beam divergence (FWHM) perpendicular to pn-junction | $\Theta_{\perp}$ | min.   | 19 °              |
|   |                  | typ.   | 22 °              |
|   |                  | max.   | 25 °              |
| Threshold current                                   | $I_{th}$         | typ.   | 30 mA             |
|   |                  | max.   | 45 mA             |
| TE polarization                                     | $P_{TE}$         | typ.   | 100:1             |
| Modulation frequency                                | $f$              | min.   | 100 MHz           |
| Monitor current <sup>6)7)</sup>                     | $I_m$            | typ.   | 150 $\mu\text{A}$ |
| $V_R = 5 \text{ V}$                                 |                  |        |                   |

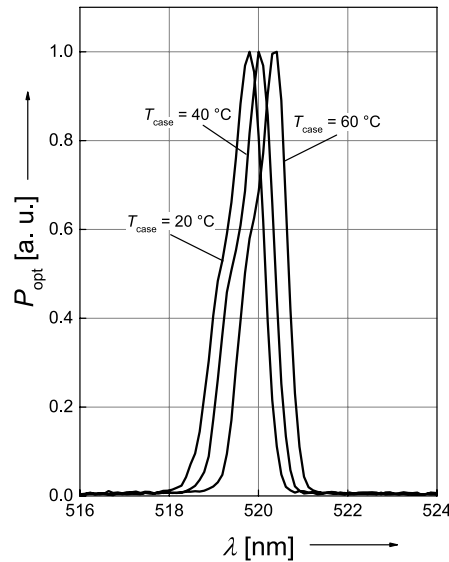
Wavelength Groups

$P_{opt} = 20 \text{ mW}$ ;  $T_c = 25 \text{ }^{\circ}\text{C}$

| Group | Peak wavelength <sup>5)</sup><br>min. | Peak wavelength <sup>5)</sup><br>max. |
|-------|---------------------------------------|---------------------------------------|
|       | $\lambda_{peak}$                      | $\lambda_{peak}$                      |
| B1    | 510 nm                                | 515 nm                                |
| B2    | 515 nm                                | 520 nm                                |
| B3    | 520 nm                                | 530 nm                                |

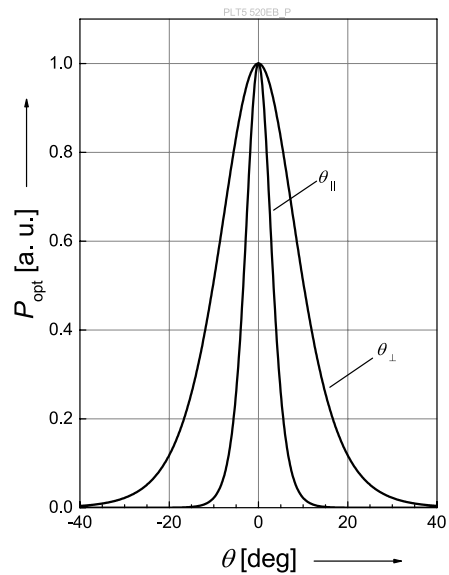
Relative Spectral Emission 8), 9)

$P_{\text{opt}} = f(\lambda)$ ; Group (B2)



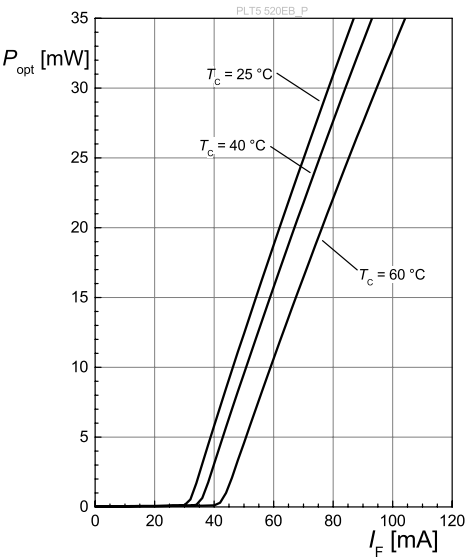
Beam Divergence 9)

$P_{\text{opt}} = f(\Theta)$



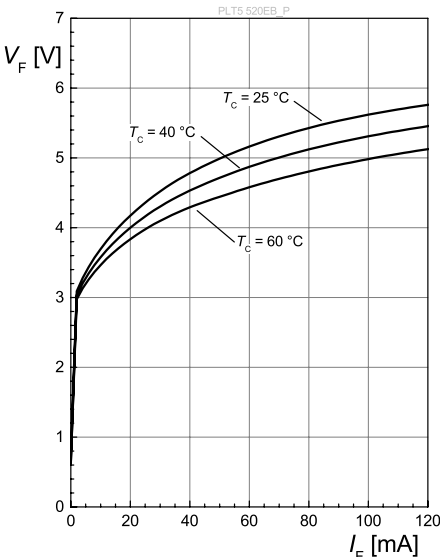
Optical Output Power 8), 9)

$P_{\text{opt}} = f(I_F)$



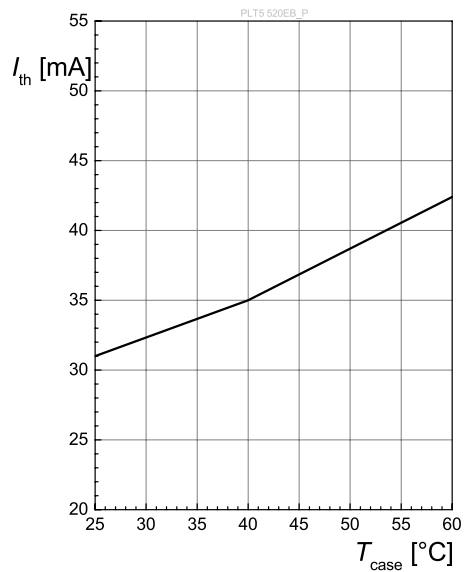
Forward Voltage 8), 9)

$V_F = f(I_F)$



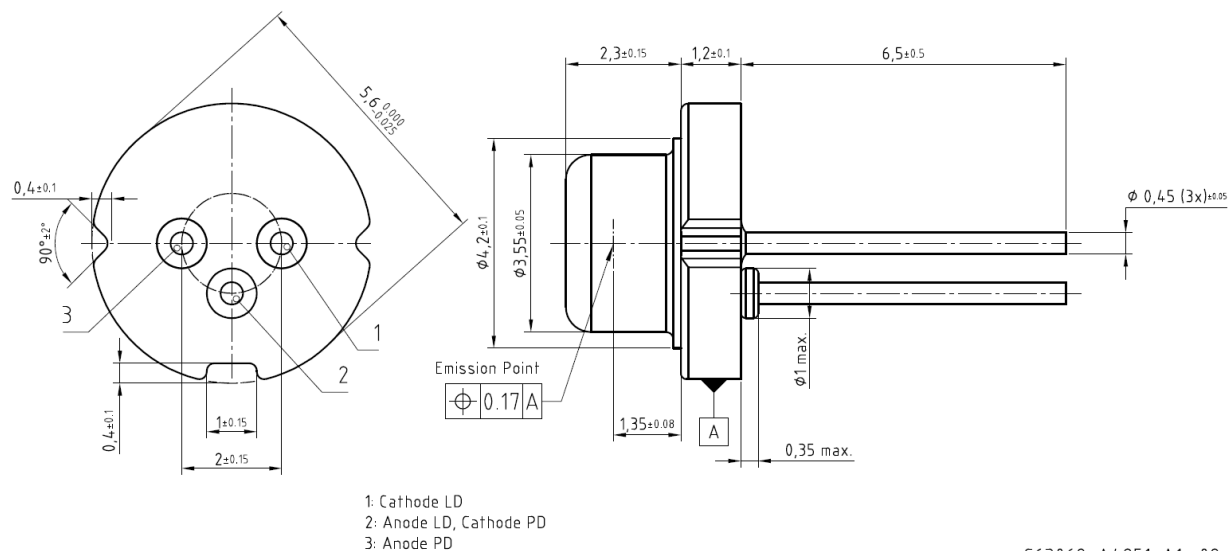
Threshold Current 8)

$I_{\text{th}} = f(T_c)$





## Dimensional Drawing <sup>10)</sup>



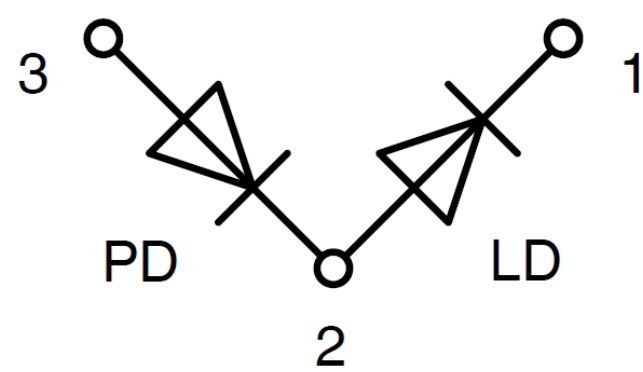
C63062-A4251-A1 -02

## Further Information:

**Approximate Weight:** 313.0 mg

**ESD advice:** ATTENTION – Observe Precautions For Handling – Electrostatic Sensitive Device

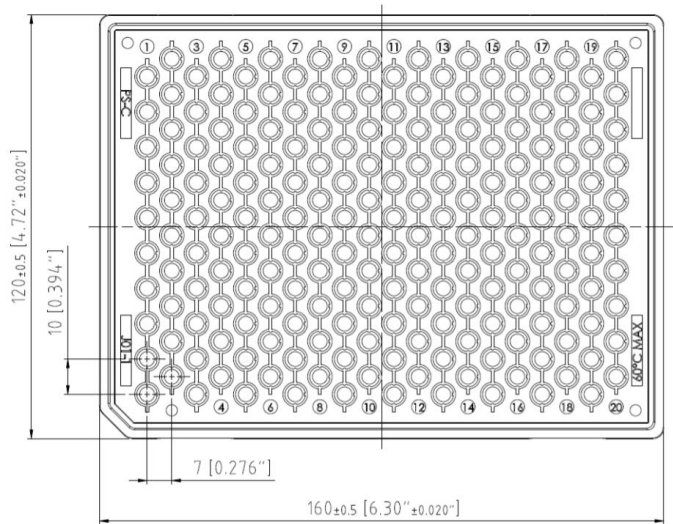
Electrical Internal Circuit



| Pin   | Description                 |
|-------|-----------------------------|
| PIN1  | LD Cathode                  |
| PIN 2 | LD Anode, PD Cathode (case) |
| PIN 3 | PD Anode                    |

## Tray

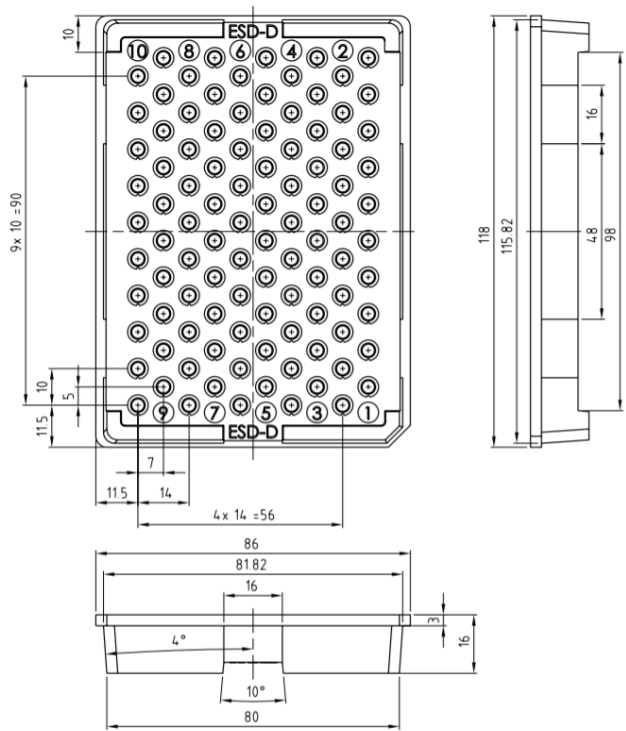
Subcon A, Packing qty  
\* 1 tray per box  
\* 200 pieces per tray



C63062-A4337-B1

## Tray

Subcon B, Packing qty  
\* 2 trays per box  
\* 100 pieces per tray



C63062-A4404-X1-01

Barcode-Product-Label (BPL)

OSRAM

LX XXXX

BIN1: XX-XX-X-XXX-X

RoHS Compliant

(6P) BATCH NO: 1234567890

(1T) LOT NO: 1234567890

(X) PROD NO: 123456789

(Q) QTY: 9999

(G) GROUP: XX-XX-X-X

ML Temp ST

X XXX °C X

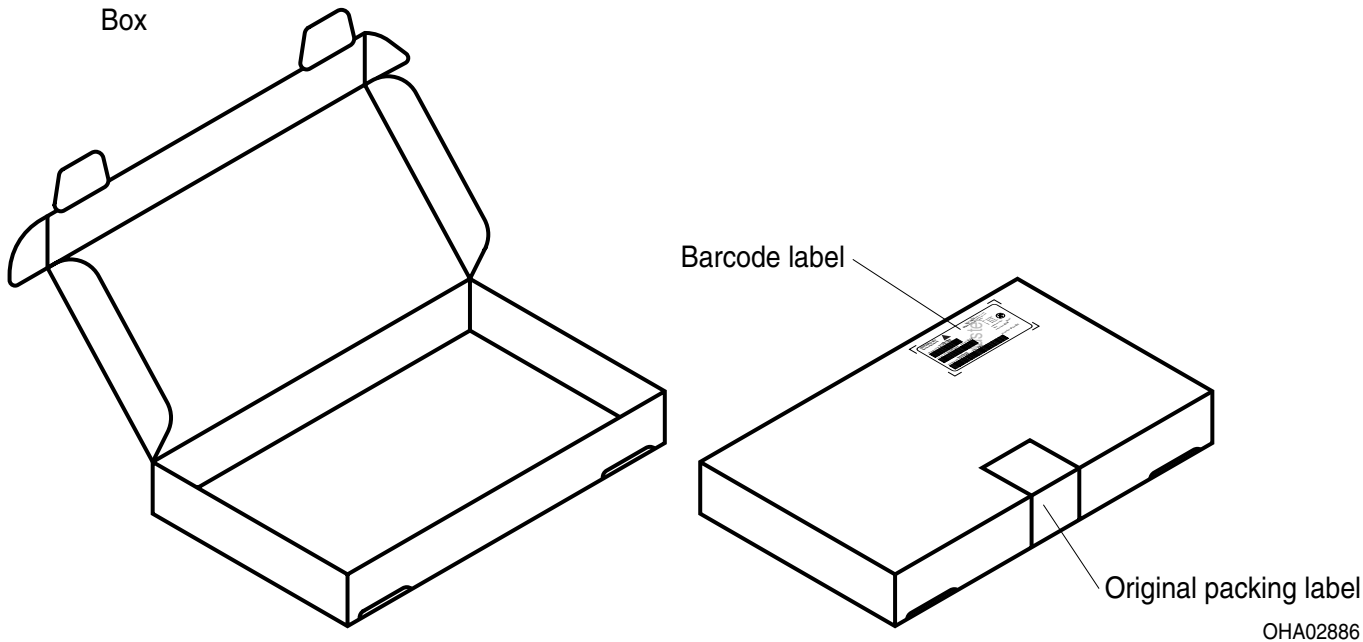
Pack: RXX

DEMY XXX

X\_X123\_1234.1234 X

OHA04563

Schematic Transportation Box <sup>10)</sup>



OHA02886

Dimensions of Transportation Box

| Subcon | Tray(s)<br>per box | Pieces<br>per tray | Packing qty<br>per box (total) | Width      | Length     | Height    |
|--------|--------------------|--------------------|--------------------------------|------------|------------|-----------|
| A      | 1                  | 200                | 200                            | 170 ± 5 mm | 270 ± 5 mm | 45 ± 5 mm |
| B      | 2                  | 100                | 200                            | 103 ± 5 mm | 128 ± 5 mm | 48 ± 5 mm |

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## Notes

Depending on the mode of operation, these devices emit highly concentrated visible and non visible light which can be hazardous to the human eye. Products which incorporate these devices have to follow the safety precautions given in IEC 60825-1.

Subcomponents of this device contain, in addition to other substances, metal filled materials including silver. Metal filled materials can be affected by environments that contain traces of aggressive substances. Therefore, we recommend that customers minimize device exposure to aggressive substances during storage, production, and use. Devices that showed visible discoloration when tested using the described tests above did show no performance deviations within failure limits during the stated test duration. Respective failure limits are described in the IEC60810.

For further application related information please visit <https://ams-osram.com/support/application-notes>

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For information on the types in question please contact our Sales Organization.

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## Glossary

- 1) **Reverse Operation:** This product is intended to be operated applying a forward current within the specified range. Applying any continuous reverse bias or forward bias below the voltage range of light emission shall be avoided because it may cause migration which can change the electro-optical characteristics or damage the LED.
- 2) **Operating/Forward current:** IF is measured with an internal reproducibility of  $\pm 0.5$  mA (acc. to GUM with a coverage factor of  $k = 3$ ).
- 3) **Operating/Forward voltage:** VF is measured with an internal reproducibility of  $\pm 0.05$  V (acc. to GUM with a coverage factor of  $k = 3$ ).
- 4) **Wavelength:** The wavelengths are measured with a tolerance of  $\pm 0.5$  nm.
- 5) **Wavelength:**  $\lambda_{\text{peak}}$  is measured with an internal reproducibility of  $\pm 0.3$  nm (acc. to GUM with a coverage factor of  $k = 3$ ).
- 6) **Monitor current:** Monitor current refers to a reverse voltage of VRPD = 5 V. Monitor current is for short time power reference purpose only. Not guaranteed for accuracy.
- 7) **Monitor current:** For reference only.
- 8) **Typical Values:** Due to the special conditions of the manufacturing processes of semiconductor devices, the typical data or calculated correlations of technical parameters can only reflect statistical figures. These do not necessarily correspond to the actual parameters of each single product, which could differ from the typical data and calculated correlations or the typical characteristic line. If requested, e.g. because of technical improvements, these typ. data will be changed without any further notice.
- 9) **Testing temperature:** TA = 25°C (unless otherwise specified)
- 10) **Tolerance of Measure:** Unless otherwise noted in drawing, tolerances are specified with  $\pm 0.1$  and dimensions are specified in mm.



Revision History

| Version | Date       | Change   |
|---------|------------|--|
| 0.0     | 2023-04-27 | Initial Version                                      |
| 0.1     | 2023-06-21 | Type Designation System                              |
| 0.2     | 2024-08-29 | Tray<br>Dimensions of Transportation Box<br>Glossary |

Preliminary datasheet version

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EU RoHS and China RoHS compliant product

此产品符合欧盟 RoHS 指令的要求；  
按照中国的相关法规和标准，  
不含有毒有害物质或元素。

**Published by ams-OSRAM AG**

Tobelbader Strasse 30, 8141 Premstaetten, Austria

Phone +43 3136 500-0

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