

# OSRAM PLT5 522FA\_P

## Datasheet

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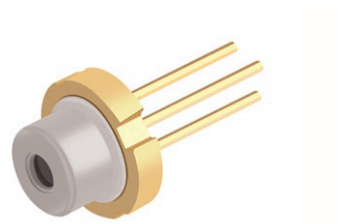


Metal Can® TO56

# PLT5 522FA\_P

Green Laser Diode in TO56 Package

- Typical emission wavelength: 514 nm with narrow tolerance of  $\pm 1$  nm
- Excellent beam pointing accuracy



## Applications

- Digital Diagnostic Devices

## Features

- Optical output power (continuous wave): 50 mW ( $T_c = 25^\circ\text{C}$ )
- Single mode semiconductor laser
- High modulation bandwidth
- Efficient radiation source for cw and pulsed operation
- TO56 package

Ordering Information

| Type             | Peak output power<br>typ.<br>$P_{opt}$ | Ordering Code |
|------------------|----------------------------------------|---------------|
| PLT5 522FA_P-M12 | 50 mW                                  | Q65113A5300   |

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## Maximum Ratings

 $T_c = 25\text{ °C}$ 

| Parameter                                        | Symbol    |              | Values          |
|--------------------------------------------------|-----------|--------------|-----------------|
| Operating temperature                            | $T_{op}$  | min.<br>max. | -20 °C<br>60 °C |
| Storage temperature                              | $T_{stg}$ | min.<br>max. | -40 °C<br>85 °C |
| Junction temperature                             | $T_j$     | max.         | 150 °C          |
| Forward current <sup>1)</sup>                    | $I_F$     | max.         | 200 mA          |
| Reverse voltage <sup>2)</sup>                    | $V_R$     | max.         | 2 V             |
| Soldering temperature<br>$t_{max} = 10\text{ s}$ | $T_s$     | max.         | 260 °C          |

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

## Characteristics

$P_{\text{opt}} = 50 \text{ mW}$  (M12);  $T_{\text{case}} = 25^\circ\text{C}$

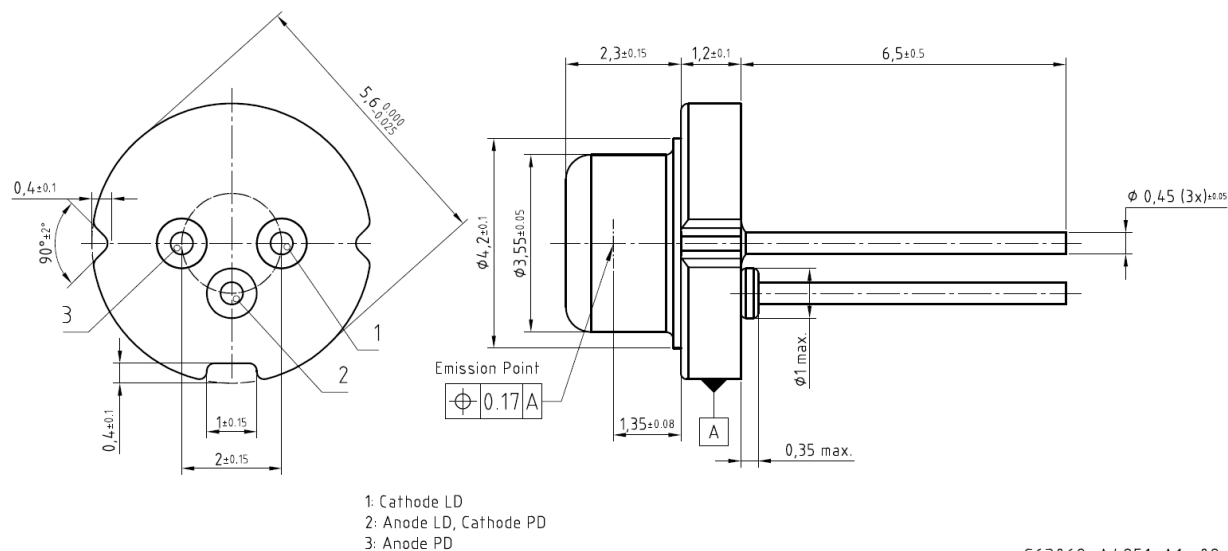
| Parameter                                           | Symbol                       |                      | Values               |
|-----------------------------------------------------|------------------------------|----------------------|----------------------|
| Operating current <sup>1)</sup>                     | $I_{\text{op}}$              | typ.<br>max.         | 115 mA<br>140 mA     |
| Operating voltage <sup>3)</sup>                     | $V_{\text{op}}$              | typ.<br>max.         | 6.0 V<br>6.9 V       |
| Peak wavelength <sup>4)</sup>                       | $\lambda_{\text{peak}}$      | min.<br>max.         | 513 nm<br>515 nm     |
| Spectral bandwidth (FWHM)                           | $\Delta\lambda$              | typ.                 | 1 nm                 |
| Beam divergence (FWHM) parallel to pn-junction      | $\Theta_{\parallel}$         | min.<br>typ.<br>max. | 6 °<br>8 °<br>10 °   |
| Beam divergence (FWHM) perpendicular to pn-junction | $\Theta_{\perp}$             | min.<br>typ.<br>max. | 19 °<br>22 °<br>25 ° |
| Beam pointing accuracy <sup>5)</sup>                | $ \Delta\theta_{\parallel} $ | min.<br>max.         | 0 °<br>1.5 °         |
| Threshold current                                   | $I_{\text{th}}$              | typ.<br>max.         | 30 mA<br>65 mA       |
| TE polarization                                     | $P_{\text{TE}}$              | typ.                 | 100:1                |
| Modulation frequency                                | $f$                          | min.                 | 100 MHz              |
| Monitor current<br>$V_{\text{R}} = 5 \text{ V}$     | $I_{\text{m}}$               | typ.                 | 90 $\mu\text{A}$     |
| Thermal resistance junction case real               | $R_{\text{thJC}}$            | typ.                 | 34 K / W             |

Wavelength Groups

| Group | Peak wavelength <sup>4)</sup><br>min.<br>$\lambda_{peak}$ | Peak wavelength <sup>4)</sup><br>max.<br>$\lambda_{peak}$ |
|-------|-----------------------------------------------------------|-----------------------------------------------------------|
| M12   | 513 nm                                                    | 515 nm                                                    |

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## Dimensional Drawing <sup>6)</sup>



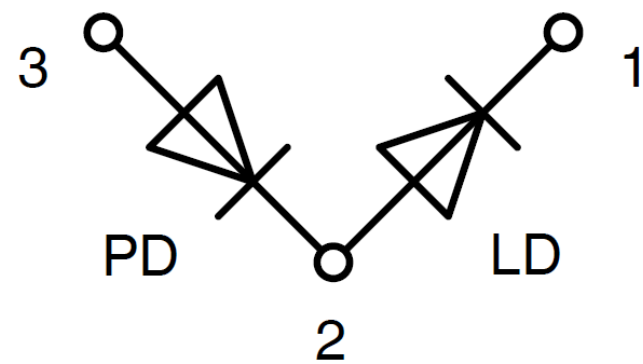
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## Further Information:

**Approximate Weight:** 313.0 mg

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

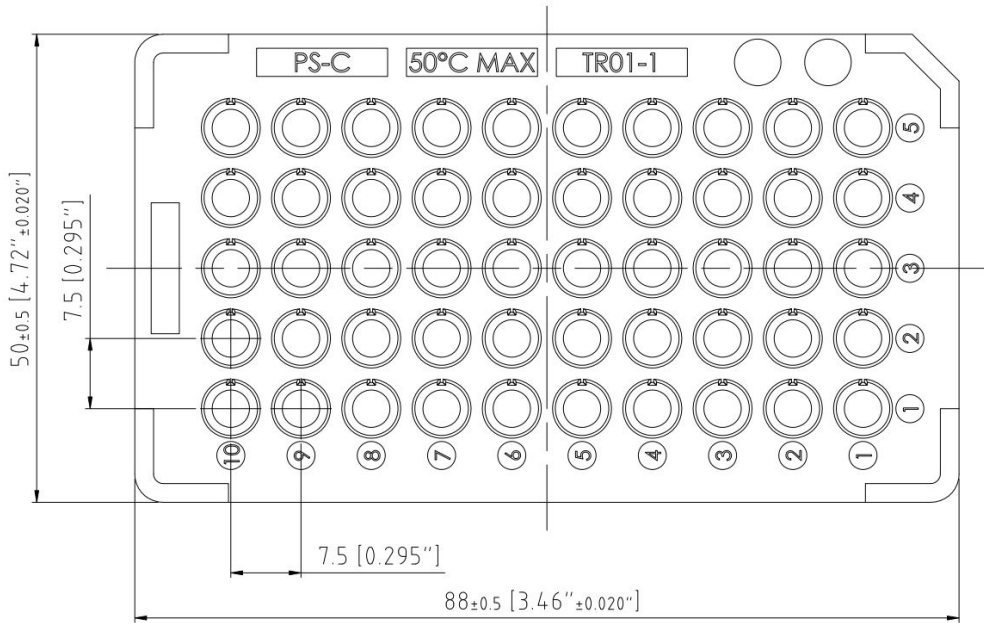
Electrical Internal Circuit



| Pin   | Description                 |
|-------|-----------------------------|
| PIN 1 | LD Cathode                  |
| PIN 2 | LD Anode, PD Cathode (case) |
| PIN 3 | PD Anode                    |

Tray <sup>6)</sup>

50 pieces per tray



C63062-A4338-B1

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Barcode-Product-Label (BPL)

OSRAM Opto  
Semiconductors

LX XXXX

BIN1: XX-XX-X-XXX-X

RoHS Compliant

ML Temp ST  
X XXX °C X

Pack: RXX  
DEMY XXX  
X\_X123\_1234.1234 X

ML Temp ST  
X XXX °C X

(6P) BATCH NO: 1234567890

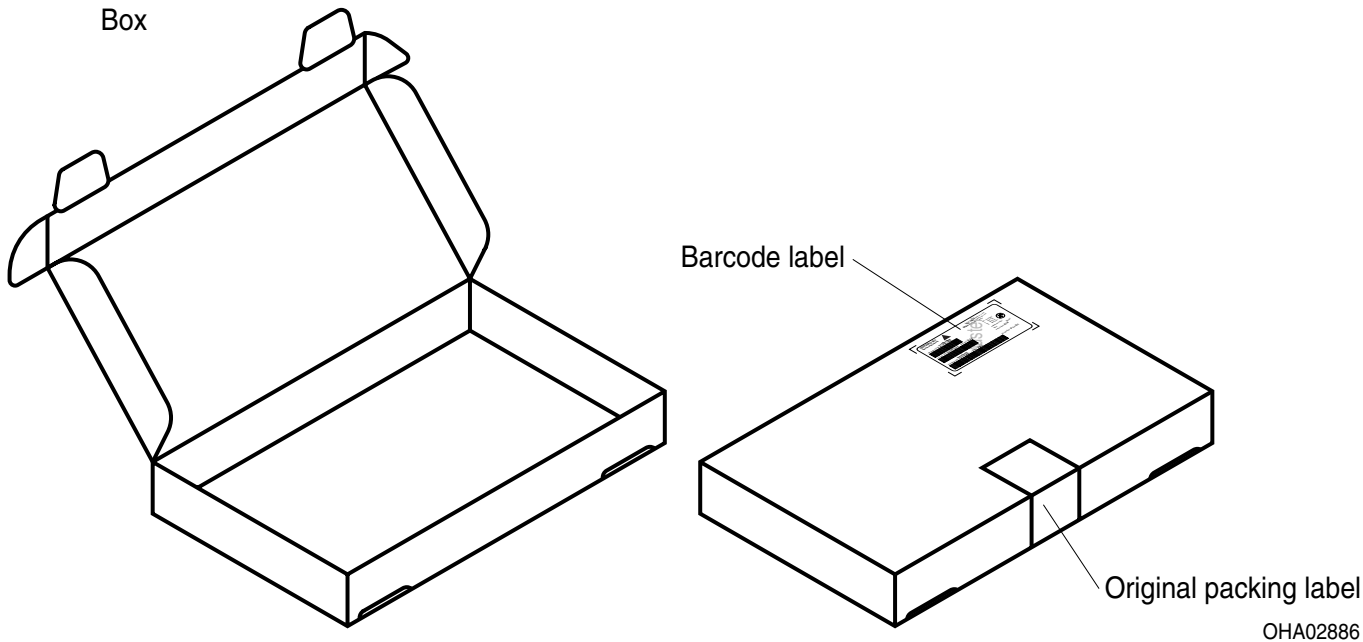
(1T) LOT NO: 1234567890

(9D) D/C: 1234

(X) PROD NO: 123456789(Q)QTY: 9999 (G) GROUP: XX-XX-X-X

OHA04563

Schematic Transportation Box <sup>6)</sup>



OHA02886

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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.

### Important notes of operation for laser diode

#### a) Electrical operation

OSRAMs laser diodes are designed for maximum performance and reliability. Operating the laser diode above the maximum rating even for very short periods of time can damage the laser diode or reduce its lifetime. The laser diode must be operated with a suitable power supply with minimized electrical noise. The laser diode is very sensitive to electrostatic discharge (ESD). Proper precautions must be taken.

#### b) Mounting instructions

In order to maintain the lifetime of the laser diode proper heat management is essential. Due to the design of the laser diode heat is dissipated only through the base plate of the diode's body. A proper heat conducting interconnection between the diodes base plate and the heat sink must be maintained.

For further application related information please visit [www.osram-os.com/appnotes](http://www.osram-os.com/appnotes)

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If printed or downloaded, please find the latest version on our website.

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Please use the recycling operators known to you. We can also help you – get in touch with your nearest sales office. By agreement we will take packing material back, if it is sorted. You must bear the costs of transport. For packing material that is returned to us unsorted or which we are not obliged to accept, we shall have to invoice you for any costs incurred.

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Our components are not developed, constructed or tested for the application as safety relevant component or for the application in medical devices.

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## Glossary

- 1) **Operating/Forward current:** IF is measured with an internal reproducibility of  $\pm 7\%$  (acc. to GUM with a coverage factor of  $k = 3$ ).
- 2) **Reverse Operation:** This product is intended to be operated applying a forward current within the specified range. Applying any reverse bias shall be avoided.
- 3) **Operating/Forward voltage:** VF is measured with an internal reproducibility of  $\pm 0.05\text{ V}$  (acc. to GUM with a coverage factor of  $k = 3$ ).
- 4) **Wavelength:** The wavelengths are measured with a tolerance of  $\pm 1\text{ nm}$ .
- 5) **Beam pointing accuracy:** The values may contain measurement deviations.
- 6) **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                                                                                                  |
|---------|------------|---------------------------------------------------------------------------------------------------------|
| α.0     | 2022-09-09 | Initial Version                                                                                         |
| α.1     | 2022-09-15 | Description<br>Electro - Optical Characteristics (Diagrams)<br>Tray<br>Dimensions of Transportation Box |

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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**

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