

PLT5 522EA_Q

Metal Can® TO56

Green Laser Diode in TO56 Package



Applications

- Architecture / Garden Lighting (LED & Laser)
- Area Lights
- Downlights/Spotlights
- Industry
- Measurement Levelling
- Mood Lighting
- Street, Tunnel and Outdoor

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
- Cathode is electrically connected to the case

Ordering Information

Type	Peak output power typ. P_{opt}	Ordering Code
PLT5 522EA_Q	20 mW	Q65113A2666

Maximum Ratings

$T_C = 25\text{ °C}$

Parameter	Symbol		Values
Operating temperature	T_{op}	min. max.	-20 °C 70 °C
Storage temperature	T_{stg}	min. max.	-40 °C 85 °C
Junction temperature	T_j	max.	120 °C
Operating current ¹⁾ ($T_C = -20\text{ °C}$)	I_{op}	max.	100 mA
Forward current ¹⁾	I_F	max.	200 mA
Reverse voltage ²⁾	V_R	max.	2 V
Soldering temperature $t_{max} = 10\text{ sec}$	T_S	max.	260 °C

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

Characteristics

$P_{\text{opt}} = 20 \text{ mW}$; $T_{\text{case}} = 25 \text{ °C}$

Parameter	Symbol		Values
Operating current ¹⁾	I_{op}	typ. max.	68 mA 82 mA
Operating voltage ³⁾	V_{op}	typ. max.	5.5 V 6.3 V
Peak wavelength ⁴⁾	λ_{peak}	min. typ. max.	510 nm 520 nm 530 nm
Spectral bandwidth (FWHM)	$\Delta\lambda$	typ.	2 nm
Beam divergence (FWHM) parallel to pn-junction	$\Theta_{\parallel}$	min. typ. max.	6 ° 7.5 ° 10 °
Beam divergence (FWHM) perpendicular to pn-junction	$\Theta_{\perp}$	min. typ. max.	19 ° 22 ° 25 °
Beam pointing accuracy ⁵⁾	$\Delta\theta_{\parallel}, \Delta\theta_{\perp}$	min. max.	-3 ° 3 °
Slope efficiency	η	min. max.	0.4 W / A 0.85 W / A
Threshold current	I_{th}	typ. max.	30 mA 50 mA
TE polarization	P_{TE}	typ.	100:1
Modulation frequency	f	min.	100 MHz
Monitor current	I_{m}	max. min.	360 μA 70 μA
$V_{\text{R}} = 5 \text{ V}$			
Thermal resistance junction case real	R_{thJC}	typ.	34 K / W

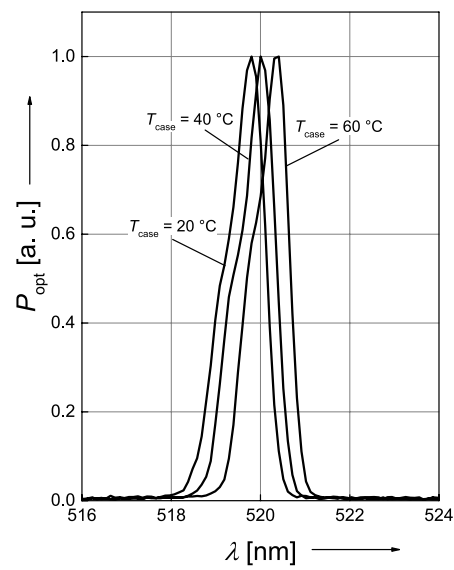
Wavelength Groups

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

Group	Peak wavelength ⁶⁾ min.	Peak wavelength ⁶⁾ max.
	λ_{peak}	λ_{peak}
B1	510 nm	515 nm
B2	515 nm	520 nm
B3	520 nm	530 nm

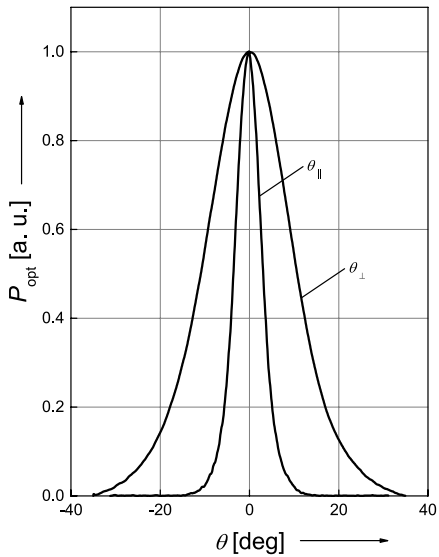
Relative Spectral Emission ^{7), 8)}

$I_{\text{e,rel}} = f(\lambda)$; $I_{\text{F}} = 65 \text{ mA}$; $P_{\text{opt}} = 20 \text{ mW}$



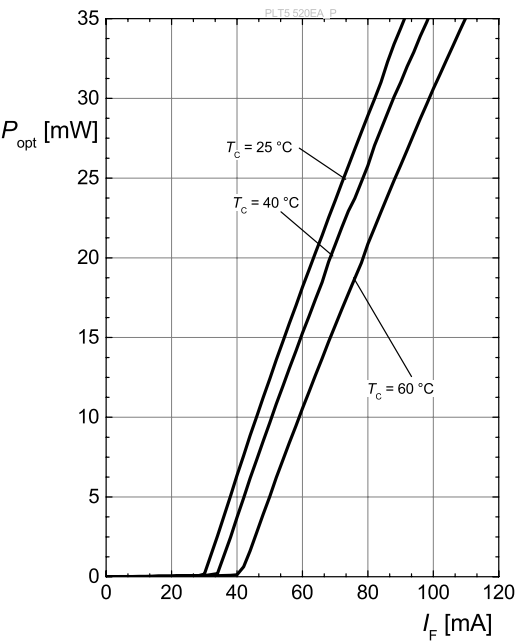
Beam Divergence 7), 8)

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



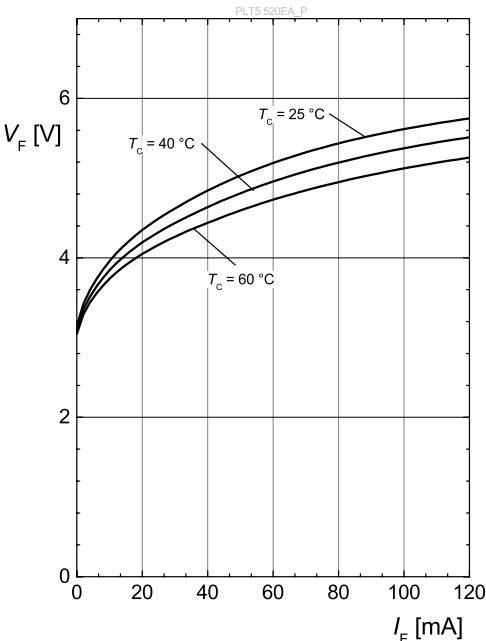
Optical Output Power 7), 8)

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



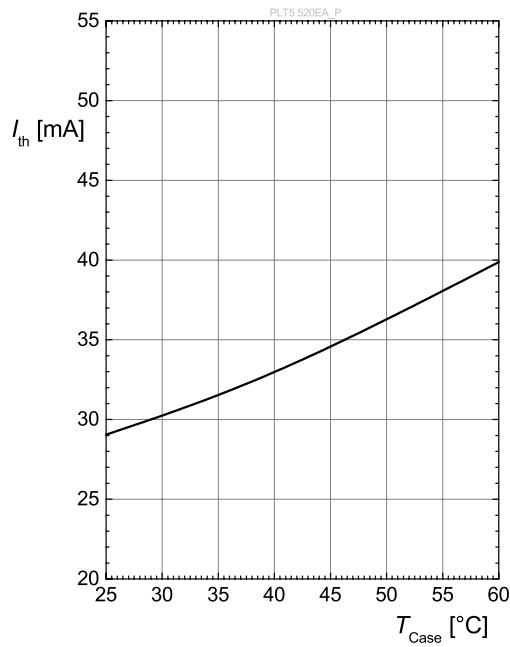
Opt. Power / Forward Voltage 7), 8)

$V_F = f(I_F)$

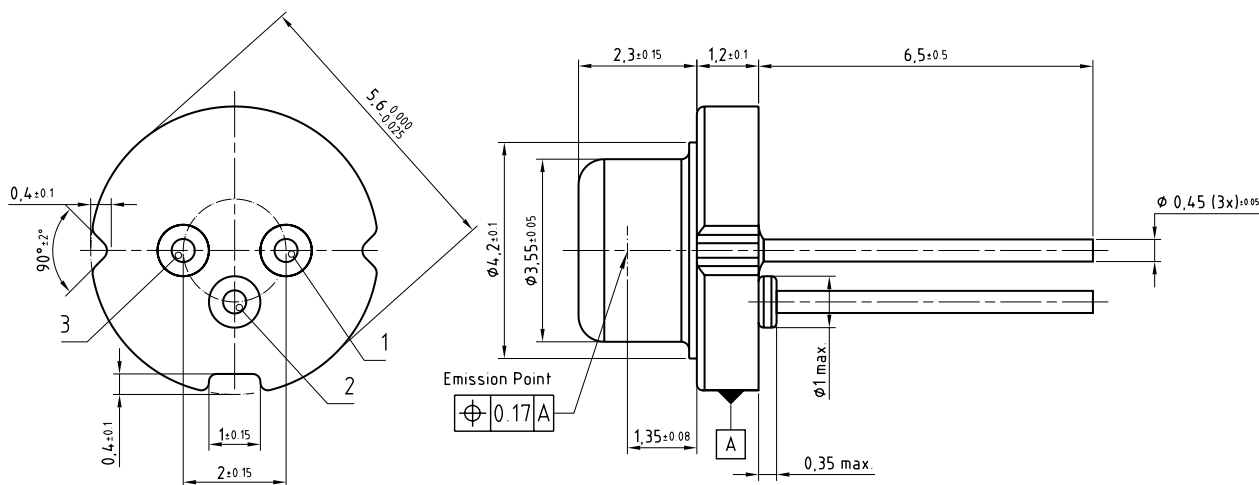


Threshold Current

$I_{th} = f(T_C)$



Dimensional Drawing ⁹⁾



Pin 1: LD Anode
 Pin 2: LD Cathode, PD Anode (case)
 Pin 3: PD Cathode

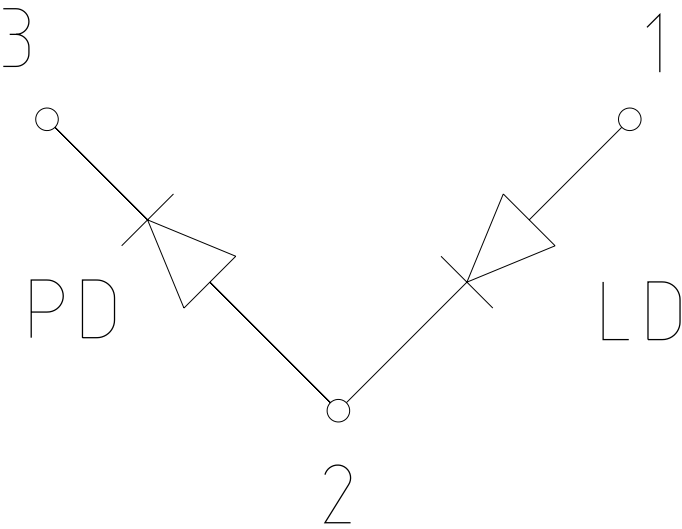
C63062-A4432-A1-01

Further Information:

Approximate Weight: 310.0 mg

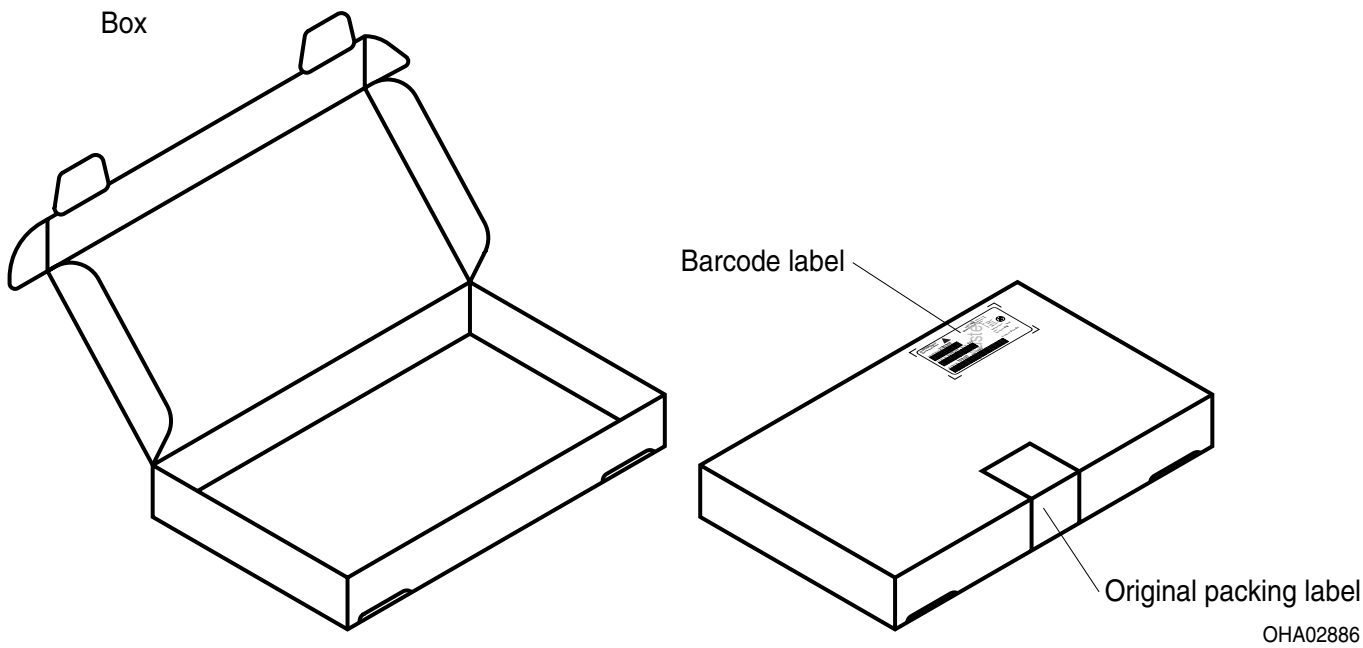
ESD advice: ATTENTION – Observe Precautions For Handling – Electrostatic Sensitive Device

Electrical Internal Circuit



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

Schematic Transportation Box ⁹⁾



Dimensions of Transportation Box

Width	Length	Height
215 ± 5 mm	265 ± 5 mm	95 ± 5 mm

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 www.osram-os.com/appnotes

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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:** λ_{peak} is measured with an internal reproducibility of $\pm 0.3\text{ nm}$ (acc. to GUM with a coverage factor of $k = 3$).
- 5) **Beam pointing accuracy:** The values may contain measurement deviations.
- 6) **Wavelength:** The wavelengths are measured with a tolerance of $\pm 1\text{ nm}$.
- 7) **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.
- 8) **Testing temperature:** TA = 25°C (unless otherwise specified)
- 9) **Tolerance of Measure:** Unless otherwise noted in drawing, tolerances are specified with ± 0.1 and dimensions are specified in mm.

Revision History

Version	Date	Change
0.0	2021-10-20	Characteristics Maximum Ratings Derating (Diagrams)
0.1	2022-01-31	Features Maximum Ratings Derating (Diagrams) Glossary

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