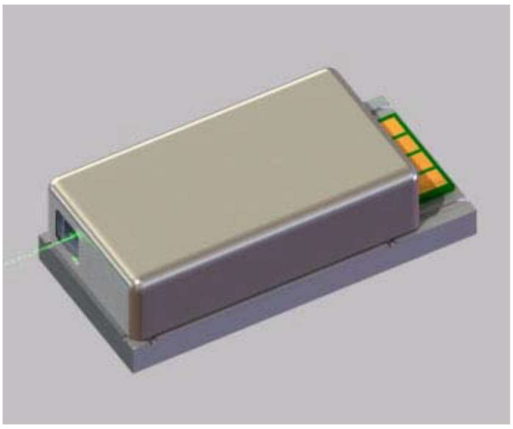
Green Frequency Doubled Semiconductor Laser

PL530



Features

• Efficient radiation source for cw and pulsed operation
• Frequency doubled semiconductor laser
• High modulation bandwidth
• Integrated heating device to adjust frequency doubling parameters
• Very compact package
• PCB connector
• ESD-withstand voltage: Up to 2kV acc. To JESD22-A114-D

Applications

• Laser projection

Safety Advice

Depending on the mode of operation, these devices emit highly concentrated visible light which can be hazardous to the human eye.

Products which incorporate these devices have to follow the safety precautions found in IEC
60825-1 “Safety of laser products”.

Type	Wavelength	Ordering Code
PL 530	530 nm	N/A

Maximum Ratings (short time operation)

Parameter	Symbol	Values		Unit
		min.	max.	
Operating Temperature [1]	T_{op}	+10	+60	°C
Storage Temperature [1]	T_{stg}	-40	+85	°C
Operating Current; Pump Laser	I	–	0.48	A
Heater Resistance [2, 3]	R_{heat}	–	$R_{heat\ 25}$ x 1.27	Ohm

1. Baseplate temperature.
2. Operation above maximum rating immediately destroys the device!
3. For further details on the heater resistance settings please refer to the application note “Heater Control & Driving”.

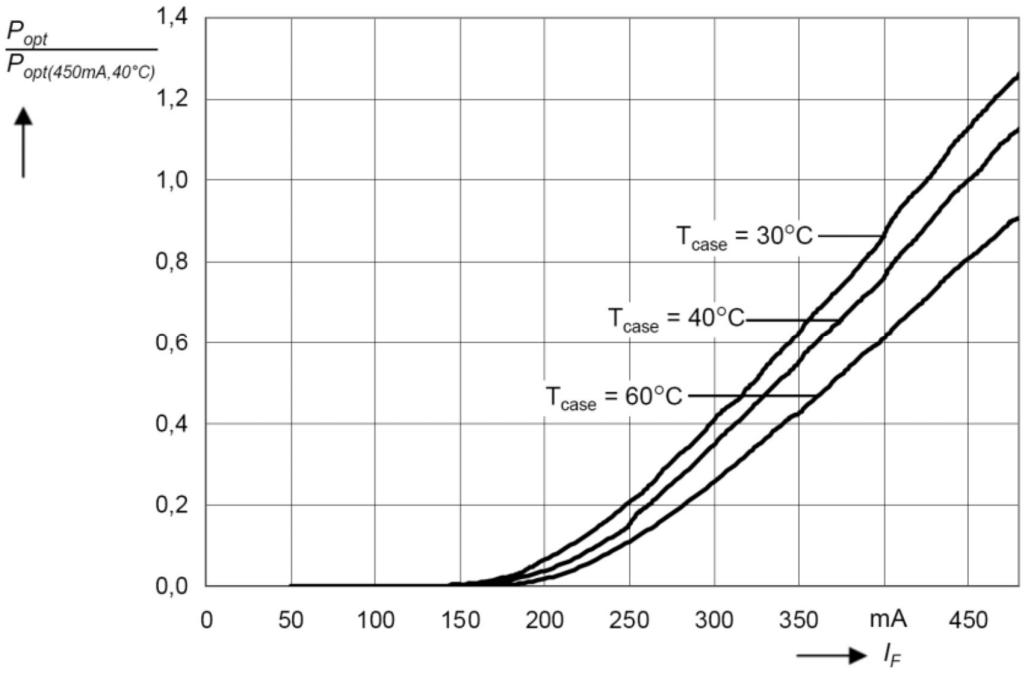
Laser Characteristics - (T_A = 40 °C)

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Emission Wavelength [1]	λ_{peak}	528	530	535	nm
Spectral Width (FWHM)	$\Delta\lambda$	–	0.2	0.3	nm
Output Power (CW Operation) [1, 2]	P_{op}	46	–	–	mW
Threshold Current	I_{th}	–	0.18	0.25	A
Operating Current	I_{op}	–	0.45	0.48	A
Operating Voltage [1]	V_{op}	–	1.8	2.2	V
Residual IR Laser Output	P_{res}	–	–	2	mW
Beam Diameter at Output Window	d	–	0.1	–	mm
Beam divergence (half-width at $1/e^2$)	$\theta_{//}$ x $\theta_{\perp}$	4x4	–	8x8	mrad
Beam Quality	M^2	–	–	1.3	–
Polarisation	P_{gr}	–	100:1	–	–
Raise and fall time (10%...90%) [3]	t_r t_f	– –	– –	10 15	nsec nsec
Heater Resistance at 25°C	$R_{heat\ 25}$	27	32	37	Ohm

1. Standard operating conditions refer to diode current Iop = 0,48A.
2. Optical power measurements refer to an integrating sphere.
3. For fastest switching performance the laser needs to be started from threshold level.

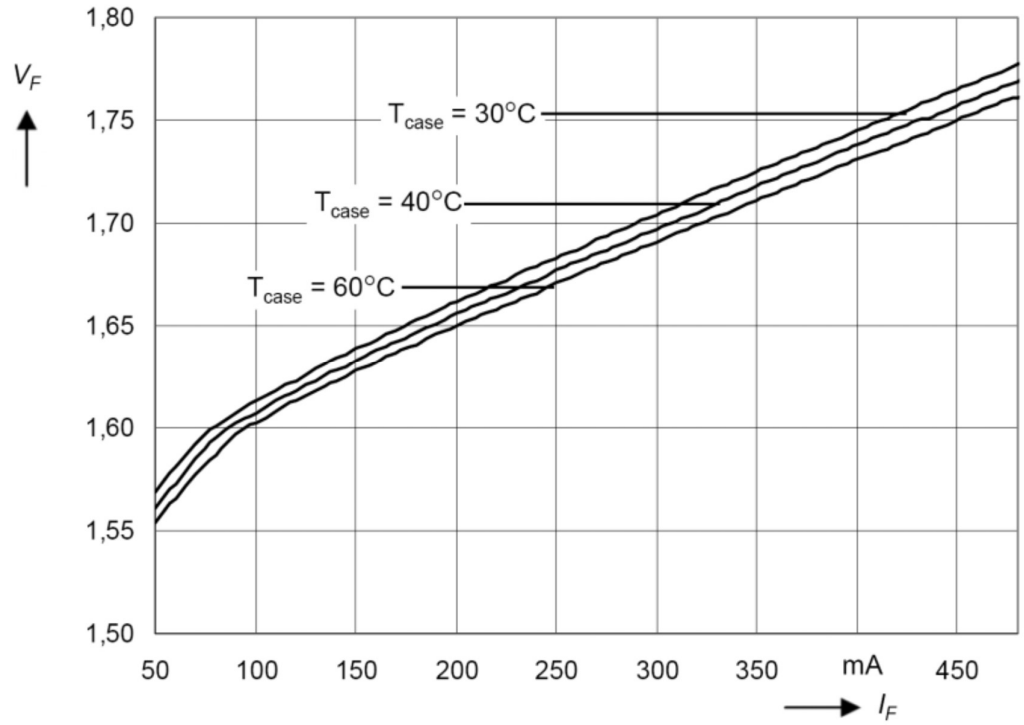
Optical Output Power

$P_{opt} = f(I_F)$



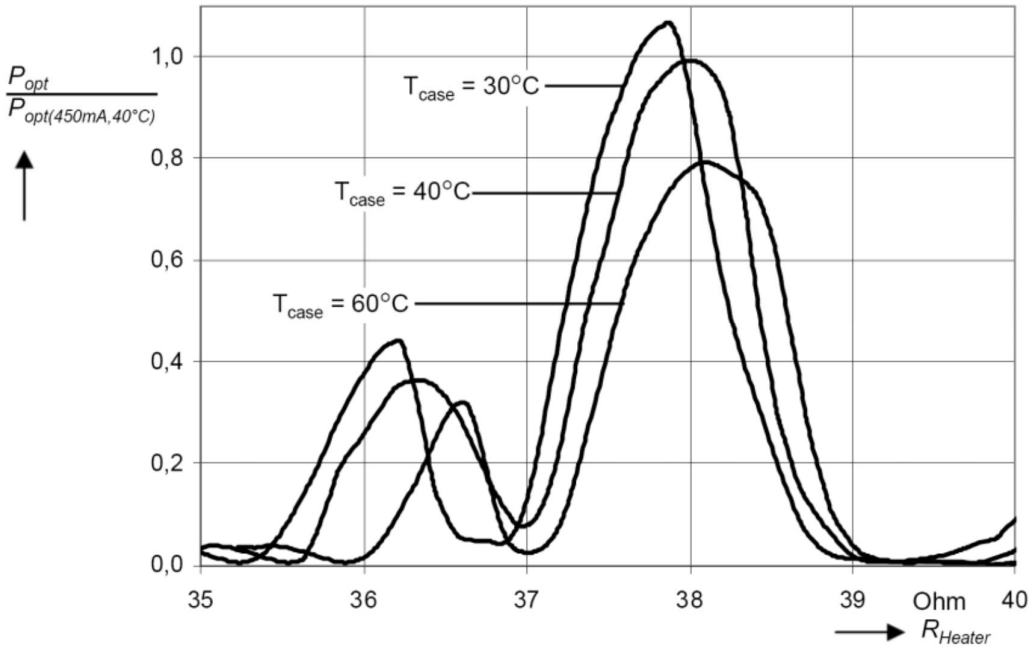
Operating Voltage

$V_F = f(I_F)$



Optical Output Power

$P_{op} = f(R_{Heater})$



Important notes of operation for laser device:

a) Safety of laser product:

The laser devices classified in **class 3B acc. IEC 60825-1**. The actual laser light emitted by the laser device strongly depends on the mode of operation.

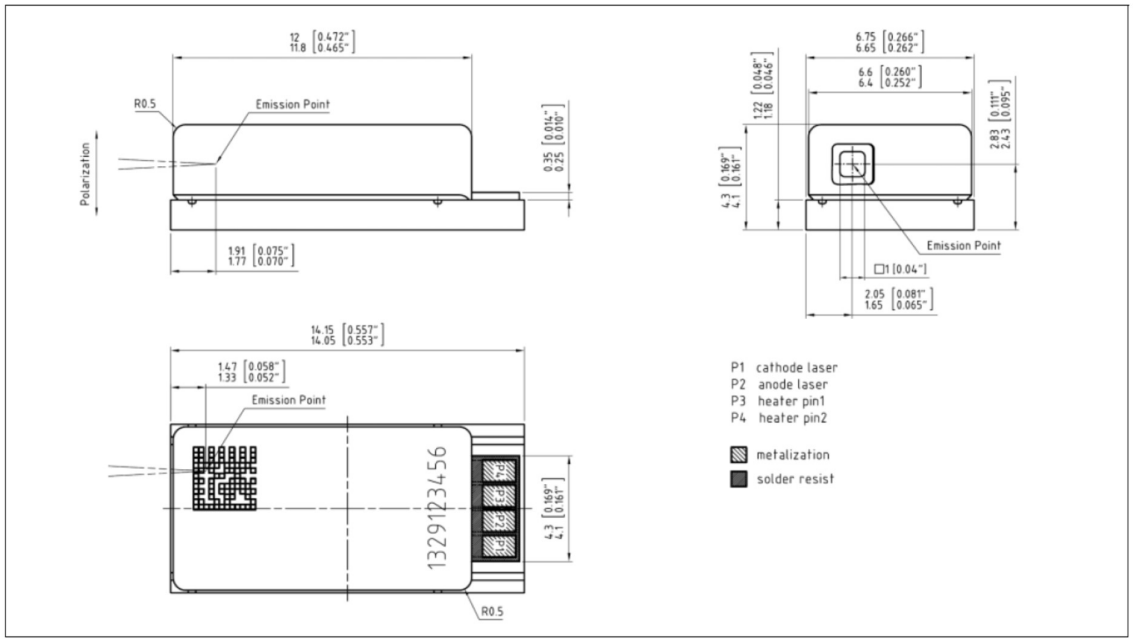
b) Electrical operation:

OSRAM's laser devices are designed for maximum performance and reliability. Operating the laser device above the maximum rating even for very short periods of time can damage the laser diode or reduce its lifetime. The laser device must be operated with a suitable power supply with minimized electrical noise.

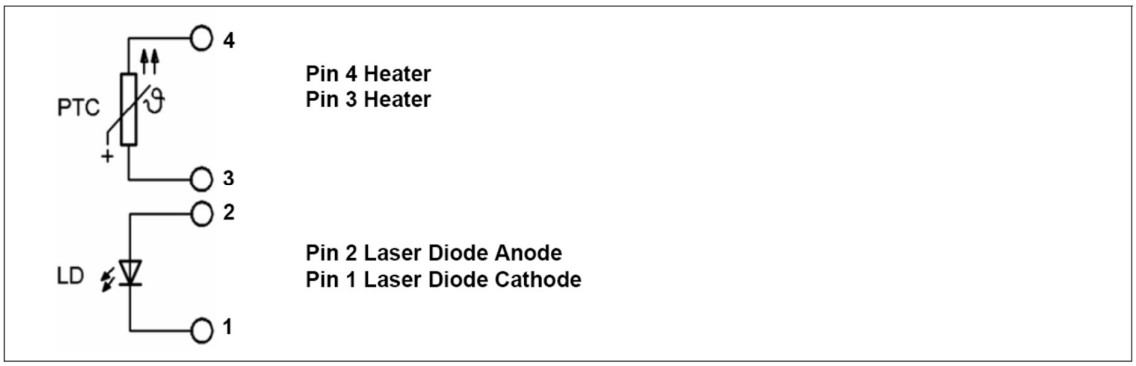
c) Mounting instructions:

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

Preliminary Package Outlines



Preliminary Pin Connection



Note:
This Document has been condensed from original datasheet for English Only content.

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Packing
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.

Components used in life-support devices or systems must be expressly authorized for such purpose! Critical components [1], may only be used in life-support devices or systems [2] with the express written approval of OSRAM OS.
[1] A critical component is a component used in a life-support device or system whose failure can reasonably be expected to cause the failure of that life-support device or system, or to affect its safety or effectiveness of that device or system.
[2] Life support devices or systems are intended (a) to be implanted in the human body, or (b) to support and/or maintain and sustain human life. If they fail, it is reasonable to assume that the health of the user may be endangered.