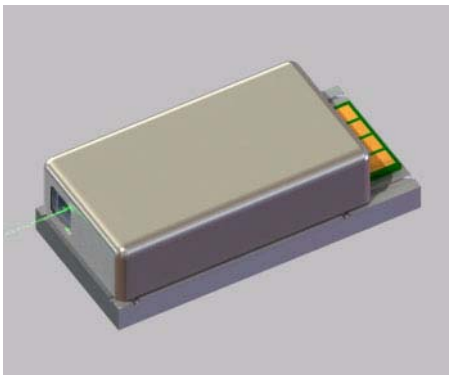
绿光倍频半导体激光器
Green frequency doubled semiconductor laser

PL 530



特点

- 连续波 (CW) 和脉冲运行的高效辐射源
- 倍频半导体激光器
- 高调制带宽
- 集成有加热装置，用于调整倍频参数
- 封装非常紧凑
- 印刷电路板连接器
- ESD 耐压：可达 2 kV（符合 JESD22-A114-D 标准）

应用

- 激光投影

安全建议

根据工作模式不同，这些装置会发射出高度集中的可见光，对人眼造成伤害。包含此类装置的产品必须采取 IEC 60825-1 “激光产品的安全”中规定的安全保障措施。

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”.

类型 **Type**	波长 **Wavelength**	订购代码 **Ordering Code**
PL 530	530 nm	N/A

最大额定值（短时工作）
Maximum Ratings (short time operation)

参数 **Parameter**	符号 **Symbol**	值 **Values**		单位 **Unit**
		最小值 / **min.**	最大值 / **max.**	
工作温度[1)] Operating temperature[1)]	T_{op}	+10	+60	°C
储存温度[1)] Storage temperature[1)]	T_{stg}	-40	+85	°C
工作电流（泵浦激光器） Operating current pump laser	I	–	0.48	A
加热器电阻[2)3)] Heater Resistance[2)3)]	R_{heat}	–	R_{heat25} x 1.27	Ohm

1) 底板温度
Baseplate temperature

2) 在超过额定值的情况下运行会立即损毁装置！
Operation above maximum rating immediately destroys the device!

3) 关于加热器电阻的详细信息，请参见应用注释“加热器控制和驱动”
For further details on the heater resistance settings please refer to the application note „Heater Control & Driving“

激光特性 (T_A = 40 °C)
Laser Characteristics

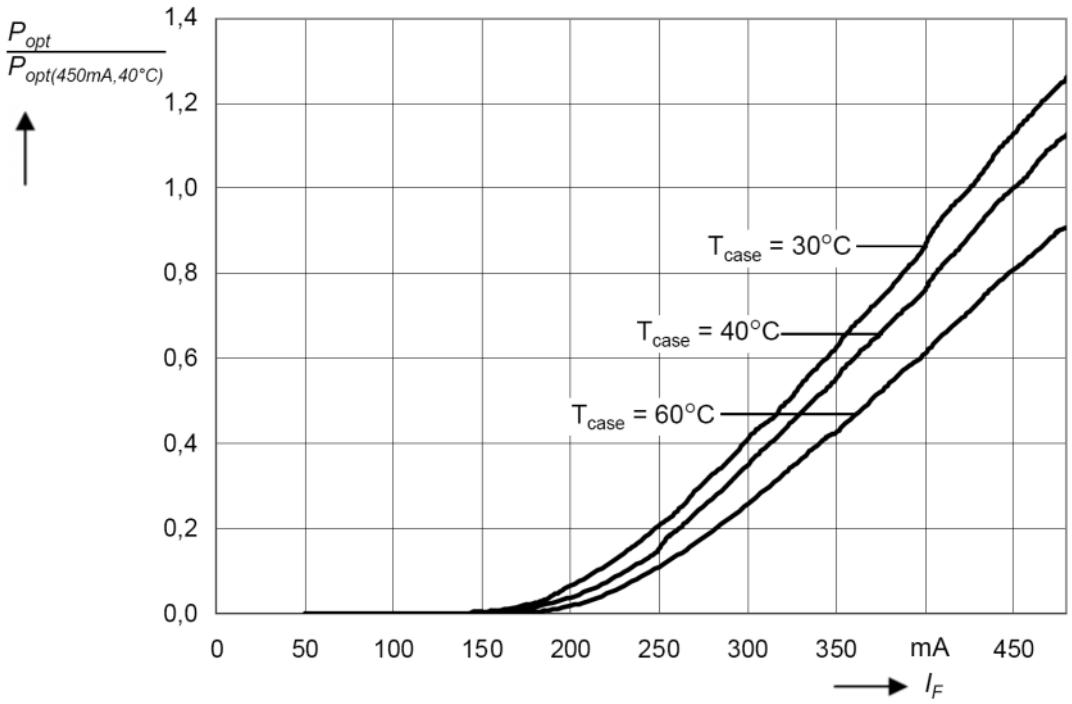
参数 **Parameter**	符号 **Symbol**	值 **Values**			单位 **Unit**
		最小值 / **min.**	典型值 / **typ.**	最大值 / **max.**	
发射波长[1)] Emission wavelength[1)]	λ_{peak}	528	530	535	nm
谱宽 (FWHM) Spectral width (FWHM)	$\Delta\lambda$	–	0.2	0.3	nm
输出功率（连续波 (CW) 运行）[1)2)] Output power (CW operation)[1)2)]	P_{op}	46	–	–	mW
阈值电流 Threshold current	I_{th}	–	0.18	0.25	A
工作电流 Operating current	I_{op}	–	0.45	0.48	A
工作电压[1)] Operating voltage[1)]	V_{op}	–	1.8	2.2	V
残余红外激光输出 Residual IR laser output	P_{res}	–	–	2	mW
输出窗口的光束直径 Beam diameter at output window	d	–	0.1	–	mm
光束发散度（1/e² 时的一半宽度） Beam divergence (half-width at 1/e²)	$\theta_{//}$ x θ_{∞}	4x4	–	8x8	mrad
光束质量 Beam Quality	M^2	–	–	1.3	–
偏振 Polarization	P_{gr}	–	100:1	–	–
升降时间 (10%...90%)[3)] Raise and fall time (10%...90%)[3)]	t_r t_f	– –	– –	10 15	nsec nsec
25°C 时的加热器电阻 Heater Resistance at 25°C	R_{heat25}	27	32	37	Ohm

1) 标准工作条件指二极管电流 *I*op = 0.48A。
Standard operating conditions refer to diode current *I*op = 0,48A.

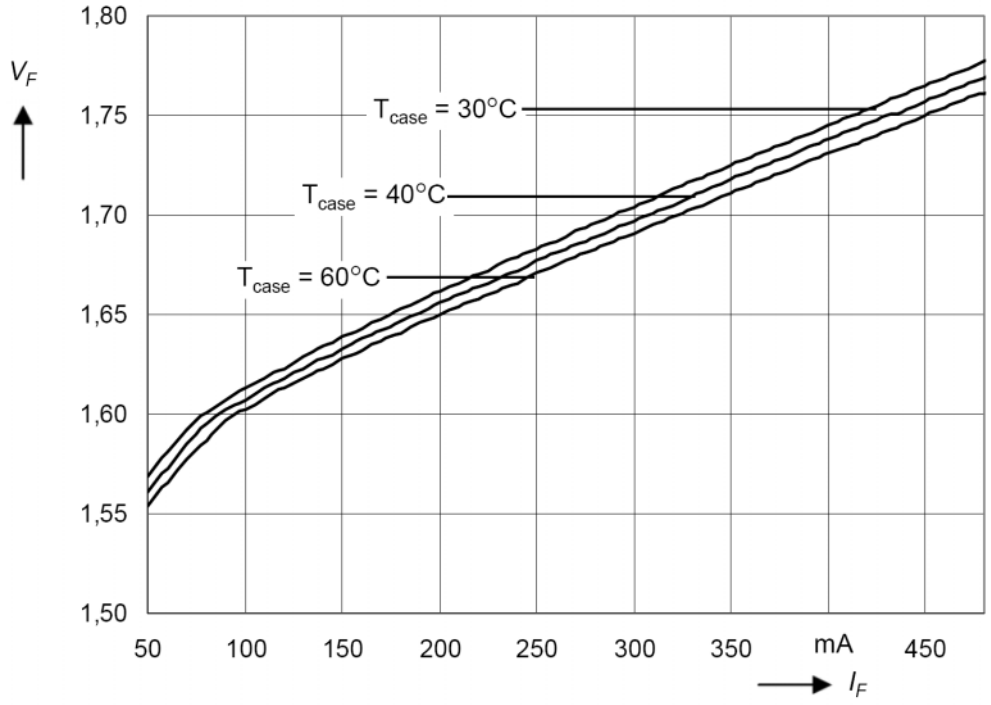
2) 光功率测量涉及积分球。
Optical power measurements refer to an integrating sphere.

3) 为了获取最快速的转换性能，需要在阈值电平时启动激光器。
For fastest switching performance the laser needs to be started from threshold level.

光输出功率
Optical Output Power
$P_{opt} = f(I_F)$



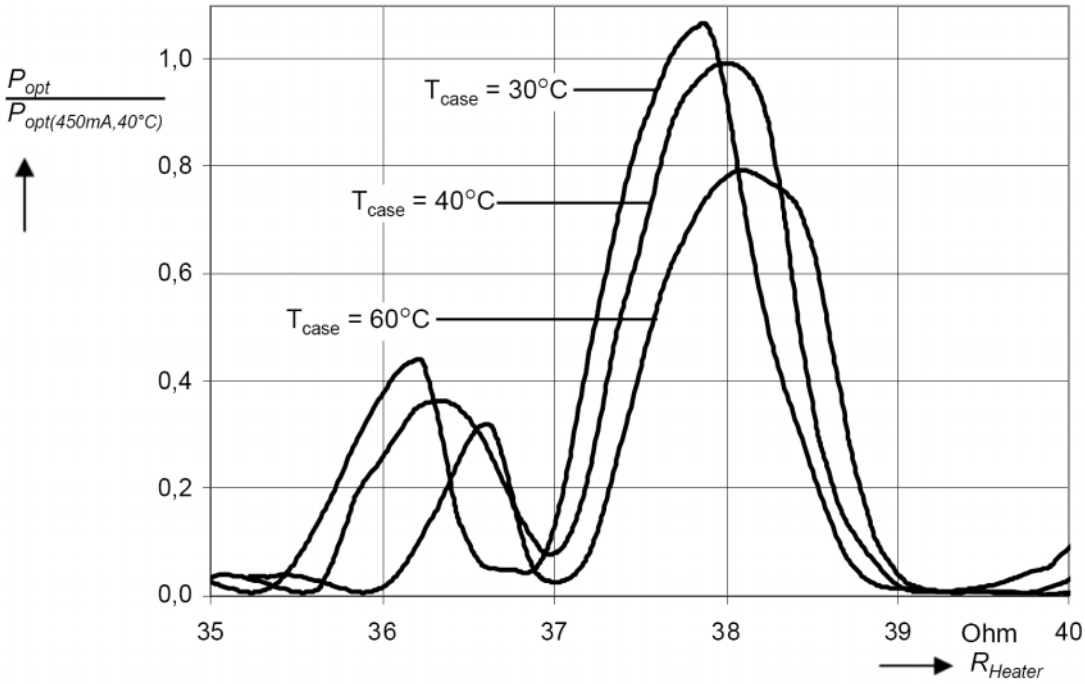
工作电压
Operating Voltage
$V_F = f(I_F)$



光输出功率

Optical Output Power

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



激光装置运行的重要注意事项：

a) 激光产品的安全：

根据 IEC 60825-1 标准，激光装置属于 **3B 类**产品。激光装置实际发射的激光量很大程度上取决于工作模式。

b) 电气操作：

欧司朗的激光装置设计为最高性能和可靠性。如果在超过最大额定值的情况下工作，即使时间很短，也会对激光装置造成损坏或缩短其使用寿命。必须使用电噪声降至最低的合适电源为激光装置供电。

c) 安装说明：

为延长激光装置的使用寿命，有必要进行适当的热管理。根据该激光装置的设计，只能从装置的底板散热。因此，装置底板与热沉之间必须保持适当的导热互连。

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.

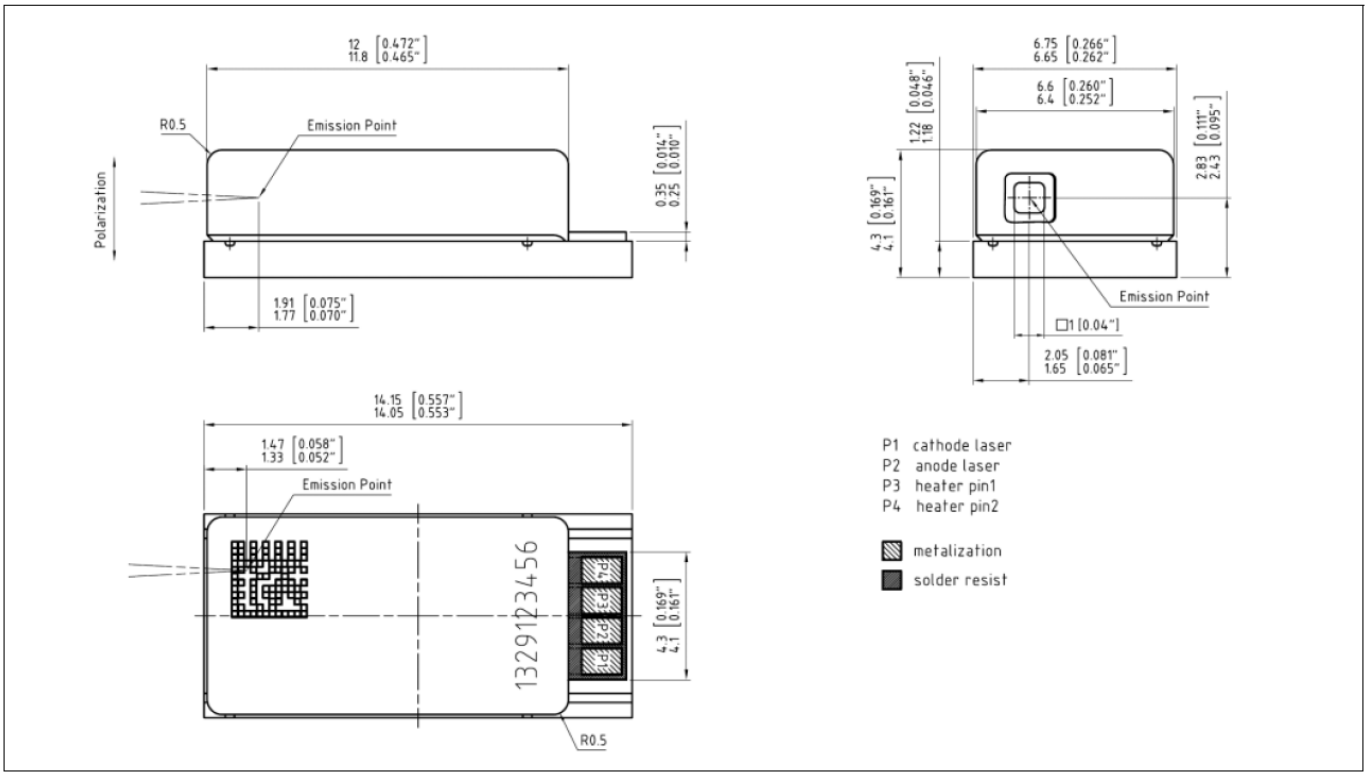
b) Electrical operation:

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:

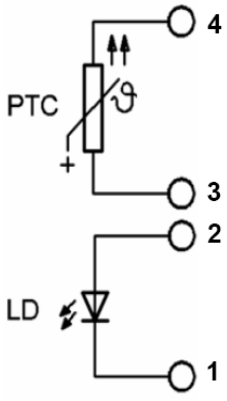
In order to maintain the lifetime of the laser device proper heat management is essential. Due to the design of the laser device heat is dissipated only through the base plate of the device. A proper heat conducting interconnection between the devices base plate and the heat sink must be maintained.

初步封装略图
Preliminary Package Outlines



尺寸（单位：mm） / Dimensions in mm

初步引脚连接
Preliminary Pin Connection



引脚 4 加热器 / Pin 4 Heater
引脚 3 加热器 / Pin 3 Heater

引脚 2 激光二极管阳极 / Pin 2 Laser Diode Anode
引脚 1 激光二极管阳极 / Pin 1 Laser Diode Anode

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