# PN: 940L10105-L

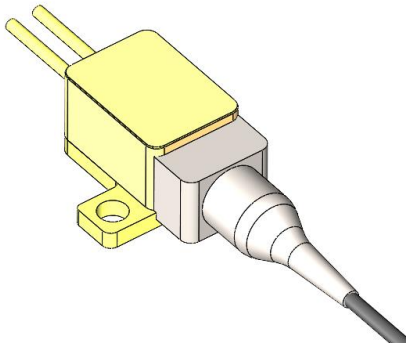
**10W 940nm 105μm**
**Fiber Coupled High Power Diode Laser**
**Rev D3**

**主要特性 Key Features:**

- 单管耦合，高可靠性 Single emitter based diode laser, high reliability
- 防反射保护 1500-1600nm feedback protection

**应用领域 Applications:**

- 激光雷达 Lidar
- 激光器泵浦 Laser pumping
- 直接应用 Direct applications



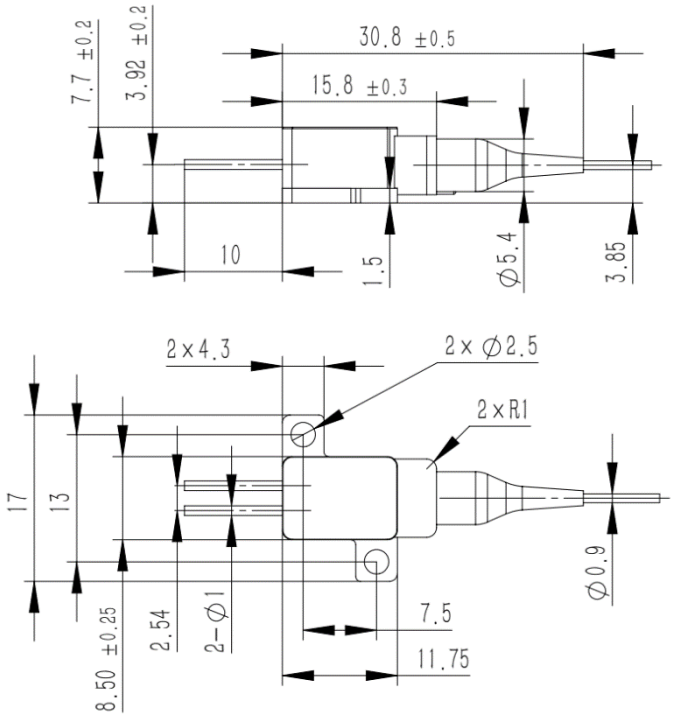
| 光学参数@25℃/Optical Parameters@25℃ [1] | Unit | Minimum | Typical | Maximum |
|---|---|---|---|---|
| 输出功率@12A /Output Power@12A | W | 10 | | |
| 输出功率@6A /Output Power@6A | W | 4.7 | | |
| 中心波长/Center Wavelength | nm | | 940 | 950 |
| 光谱宽度/Spectral Width(FWHM) | nm | | 6 | |
| 温度漂移系数/Wavelength Temperature Coefficient | nm/℃ | | 0.3 | |
| 电流漂移系数/ Wavelength Current Coefficient | nm/A | | 1 | |
| 95%出光 NA/95% Power Within NA | NA | | | 0.15 |
| 斜效率/Slope Efficiency | W/A | 0.9 | | |
| 防反射波段/Back Reflection Isolation Range | nm | 1500 | | 1600 |
| 防反射隔离度/Back Reflection Isolation | dB | 30 | | |
| **光学参数@105℃/Optical Parameters@105℃ [2]** | | | | |
| 输出功率@6A /Output Power@6A | W | 3.3 | | |
| 斜效率/Slope Efficiency | W/A | 0.6 | | |
| **光纤参数/Fiber Parameters** | | | | |
| 纤芯直径/Fiber Core Diameter | μm | 102 | 105 | 108 |
| 包层直径/Fiber Clad Diameter | μm | 123 | 125 | 127 |
| 涂覆层直径/Coating Diameter | μm | 230 | 245 | 260 |
| 光纤数值孔径/Numerical Aperture | NA | 0.20 | 0.22 | 0.24 |
| 光纤长度/Fiber Length | m | 0.6 | 1.0 | |
| 套管材料/Loose Material | | | Hytrel | |
| 套管直径/Loose Tubing Diameter | mm | | 0.9 | |
| 套管长度/Loose Tubing length | cm | | 15 | |
| 光纤连接头/Fiber Connector | | | Bare Fiber | |
| 弯曲半径/Fiber Bend Radius | mm | 15 | | |
| **电学性能/Electrical Parameters** | | | | |
| 光电转换效率/Conversion Efficiency | % | 50 | 53 | |
| 阈值电流/Threshold Current | A | | 0.8 | |
| 工作电流/Operating Current | A | | | 13.0 |
| 工作电压/Operating Voltage | V | | 1.75 | |

[1] 在 25 摄氏度冷却板温度下测得。

[2] 壳体温度 104-110℃之间测试。

| | | | |
|---|---|---|---|
| **热学性能/Thermal Parameters** | | | |
| 工作温度 [3]/Operating Temperature Range[3] | ℃ | -40 | 105 |
| 存储温度/Storage Temperature Range | ℃ | -40 | 115 |
| ESD | V | | 500 |
| 相对湿度/ Relative Humidity | % | 15 | 85 |
| **密封性/Sealing Performance** | | | |
| 漏率/Leak Rate | $Pa.m^3/s$ | | $10^{-7}$ |
| 水汽含量/Water Vapor Content | ppm | 5000 | |
| **机械尺寸图/Mechanical Dimensions Drawing** | | | |

单位/Unit mm




未标注尺寸公差：+/-0.2mm

[3]壳体温度 105℃时工作电流 6A。

**EDT 规范/Electronic Data Transfer Specification**

| 参数/Parameters | 抽样/Sampling Ratio | 符号/ Symbol | 温度/ Temperature ℃ | 说明/ Notes | 精度/ Precision |
|---|---|---|---|---|---|
| 功率 1/Power 1 | 100% | P0 | 25±5 | 电流 12A 下的输出功率 | x.xx |
| 功率 2/Power 2 | 100% | P1 | 25±5 | 电流 6A 下的输出功率 | x.xx |
| 功率 3/Power 3 | 100% | P2 | 107±3 | 电流 6A 下的输出功率 | x.xx |
| 中心波长/Center Wavelength | 100% | $\lambda_c$ | 25±5 | 电流 12A 下，能量占比 90%的质心波长 | x.xx |
| 光谱宽度/Spectral Width(FWHM) | 100% | FWHM | 25±5 | 电流 12A 下，光谱半高全宽 | x.xx |
| 95%出光 NA/95% Power Within NA | 100% | NA | 25±5 | 电流 12A 下，占比 95%能量对应的数值孔径 | x.xx |
| 阈值电流/Threshold Current | 100% | Ith | 25±5 | Ith@BOL | x.xx |
| 工作电压/Operating Voltage | 100% | Vop | 25±5 | 电流 12A 下的工作电压 | x.xx |
| 光电转换效率/Conversion Efficiency | 100% | PE | 25±5 | 电流 12A 下的光电转换效率 | x.xx |
| 斜效率/Slope Efficiency | 100% | η | 25±5 | 额定输出功率内 PI 曲线的斜率 | x.xx |

**使用说明 Application Notes:**

- 激光器输出激光是不可见光，使用时请遵守 IEC 四级激光标准安全规范，避免激光直接或间接照射眼睛和皮肤；The laser beam emitted from the diode laser is invisible, please follow the standard safety procedures for IEC Class 4 lasers, avoid eye or skin exposure to direct or scattered radiation;
- 静电击穿是导致半导体激光器失效的重要原因，激光器安装需由经过培训的人员完成，操作时需佩戴防静电手腕带，工作台需接地。在供电连接头与激光器管脚连接之前，不得移除激光器管脚上的防静电保护线；ESD is the primary cause of unexpected diode laser failure. The diode laser should be handled by trained operators wearing ESD grounding straps and the work surface should be grounded. Connectors should be attached to the pump pins prior to removing the ESD shortcut protection component。
- 在激光器出光之前，请确保光纤端面清洁。Ensure the end of the fiber be free of dust and contamination before operation.
- 请参照规格书，在额定电流、电压下使用激光器；The laser should be operated according to the specifications, maximum optical power should not be exceeded;
- 电流过冲有可能导致激光器损坏，请使用稳定的驱动电源，避免浪涌；The laser may be damaged by excessive drive current, stable power supply should be used to avoid surge current;
- 为保证激光器能长期可靠运行，冷却板温度需控制在 20 - 30℃，使激光器工作在合理温度范围内；To ensure long-term reliability of the laser, a 20 - 30˚C cold plate is needed to make the laser work within proper temperature range.

**版本变更说明 Update Notes:**

- Rev D2：Draft
- Rev D3：Update applications and maximum center wavelength

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