



RLS/OCP-050A

Up to 50 Watts of Laser Waste Heat Removal Capacity

TEC Heat-Pumps for Temperature Control and Stabilization

Integrates with the BA-01 and BA-02 Butterfly Laser Diode Mounting

Pre-Drilled Mounting Plate for Butterfly Laser Packages

Custom Mounting Plates Available on Request

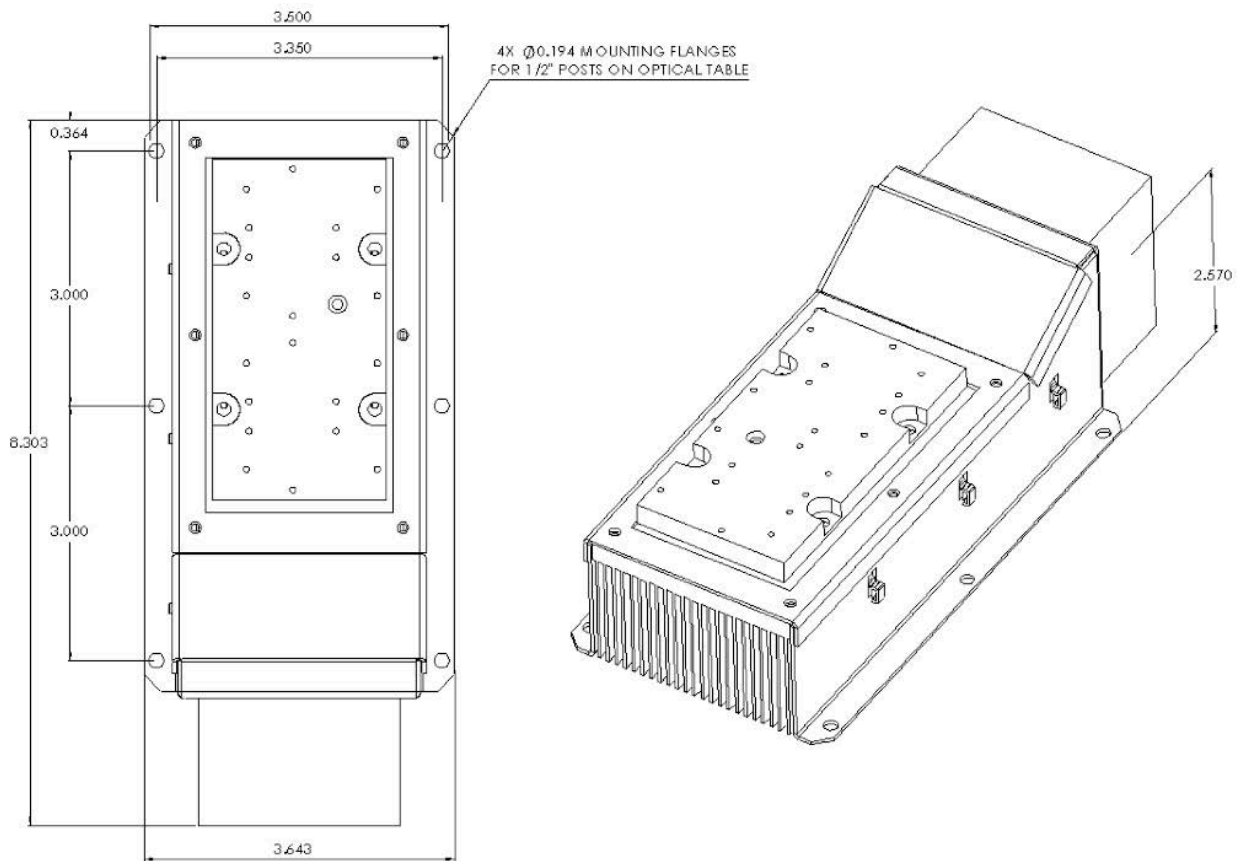
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The OCP-050 is a high performance TEC and fan based cooling module designed for high power laser diodes. It is an affordable, high performance solution for cooling and temperature control of fiber coupled laser diodes in laboratory environments.

The functional hole patterns are shown in the figure below. It has two locations for butterfly laser mounts BA-01. Custom mounting holes patterns is available upon request.

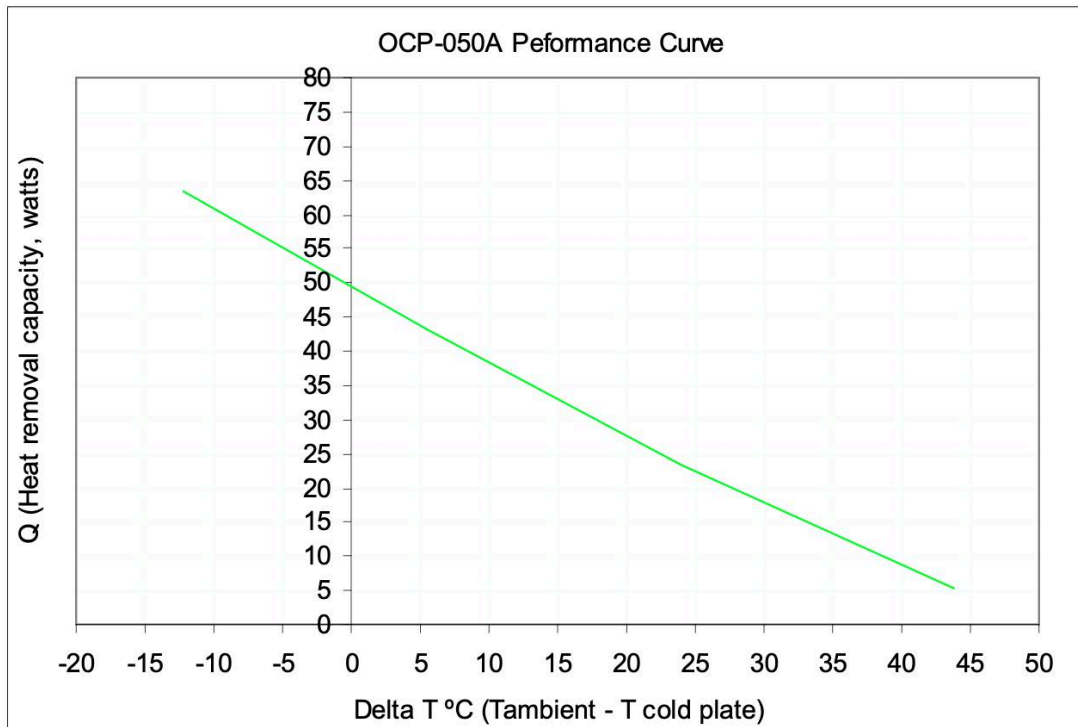
The cold plate is electrically isolated from the heatsink and the fan duct: it is safe to mount the CS diode directly on the cold plate using indium foil.



2. Performance curve

The curve illustrates the performance of OCP-050A. The Y-axis is the heat load to the coldplate, the X-axis is the delta between the lowest temperature on cold plate and ambient at the given heat load. Please notice that the cold plate temperature is an average figure, the temperature directly underneath the diode source will be higher and the edge of the cold plate will be lower.

This curve is obtained with 3.6 Amps current to each TEC with the cold side set at 25°C. The performance will improve in hotter set points and decrease if the set point is lower.



3. Cooling Approach

The fan pulls air away from front of heatsink in our standard configuration of the cooling module. It makes it easy to use on optical table with CS diode mounted on it since the air is pulling away from the optics. For applications where pushing air out from the front is not a concern, users can easily take the fan off and change the direction of the airflow; the performance will be slight better.

4. Cooling Fan Specifications (2 Fans in Parallel)

Parameters	Standard
Rated voltage	12 VDC
Operating voltage range	5.5 - 13.8 VDC
Input power	9.9 W
Rated current	0.83 A
Noise	47 dBA

5. TEC specifications

The maximum operating current for the TEC is 4.2 A, and maximum voltage is 12 VDC at room temperature. Maximum operating current and voltage increases with ambient. Exceeding the specified maximum current will reduce the performance and degrade the reliability of TECs.

The typical optimum current for each TEC is about 3 ~ 4 Amps depends on the set temperature, heat load, interface quality between the diode and cold plate, and ambient temperature. Users are advised to manually ramp the TEC driving current after assembling the diode on the cold plate to identify the optimum current and set current limit accordingly so that the TEC will not runaway. All TECs are environmentally sealed for operating below dew points.

6. Diode Cooling Interface Guidelines

The actual performance of the cooling module is extremely sensitive to the quality of the thermal interface between the cold plate and the diode. For high power laser modules with large footprints, it is very difficult to maintain a uniform high quality interface. Our cold plate is made of copper with very low spreading resistance so that the user can focus ton the area directly underneath the laser diode. If the laser diode set temperature is significantly below ambient, we highly recommend using thermal insulation materials such as silicone foam or ceramic-based insulation to insulate laser from ambient.



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PRODUCT SALES AND SERVICE:

Orders for this product are fulfilled by LaserDiodeControl.com, part of the Laser Lab Source marketplace group. It is manufactured for sale on Laser Lab Source by elite thermal engineering.

PRODUCT WARRANTY:

This product is sold with a full one year warranty. It is warranted to be free from defects in material and/or workmanship for a period of one year from the date of shipment.



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