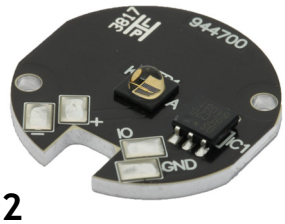
MCPCB-Mounted LED, 850 nm



M850D2

Description

Thorlabs' M850D2 LED on a Metal-Core Printed Circuit Board (MCPCB) is designed to provide high-power output in a compact package and has a nominal wavelength of 850 nm. The minimum emitted power is 900 mW, and the typical emitted power is 1100 mW. For more specifications, please see the table below.

Thermal Management

Please note that operation of this LED requires mounting of the LED to an adequate heat sink. For proper thermal management, fix the MCPCB to a heat sink using two screws and use a thermal compound to provide good thermal contact between the MCPCB and the heat sink.

Specifications

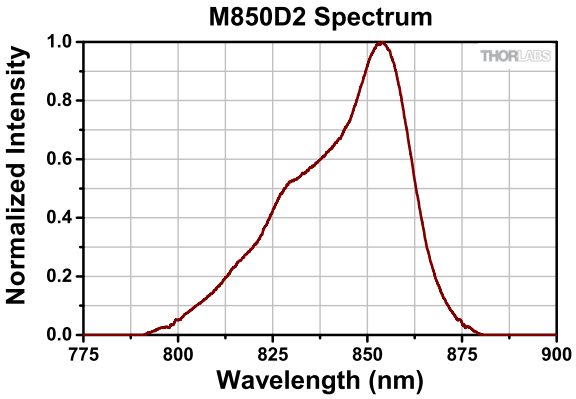
Specifications	
Color	IR
Nominal Wavelength	850 nm
Bandwidth (FWHM)	30 nm
Viewing Angle (Full Angle)	90°
Maximum Current (CW)	1200 mA
Electrical Power (Max)	3540 mW
Typical Lifetime	100 000 h
Chip Size	1 mm x 1 mm
Typical Lifetime	100 000 h
MCPCB Thickness	1.6 mm
Operating Temperature (Non-Condensing)	0 to 40 °C
Storage Temperature	-40 to 70 °C
Risk Group[a]	RG0 – Exempt Group

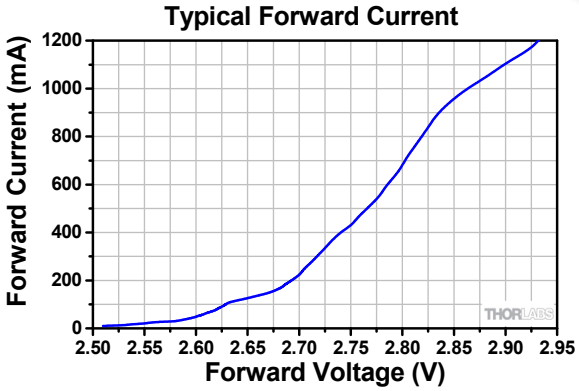
a. According to the Standard IEC 62471:2006, Photobiological Safety of Lamps and Lamp Systems

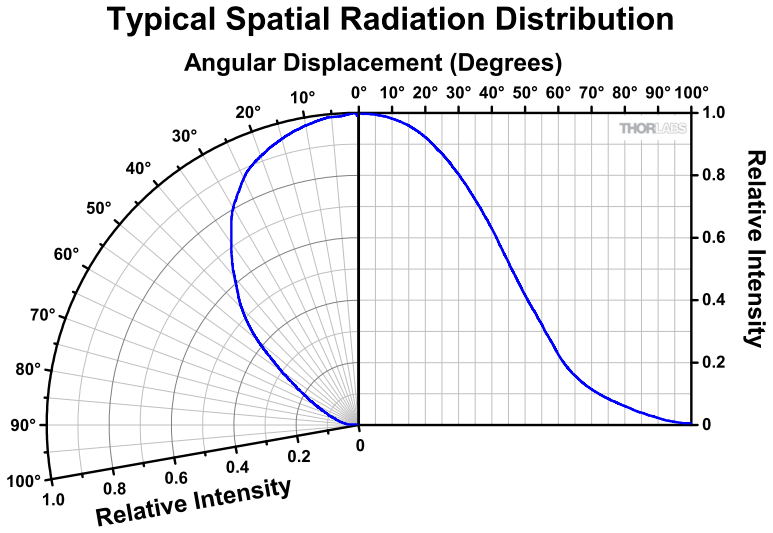
M850D2				
	Symbol	**Min**	**Typical**	**Max**
Peak Wavelength[a]	λ_p	-	860 nm	-
LED Output Power[b]	P_{out}	900 mW	1100 mW	-
Forward Voltage	V_F	-	2.95 V	-
Maximum Irradiance[c]	E_e	-	22.9 µW/mm²	-

a. 10 ms Pulse when Driven at a Current of 1000 mA
b. When Driven with the Test Current
c. Measured at a Distance of 200 mm

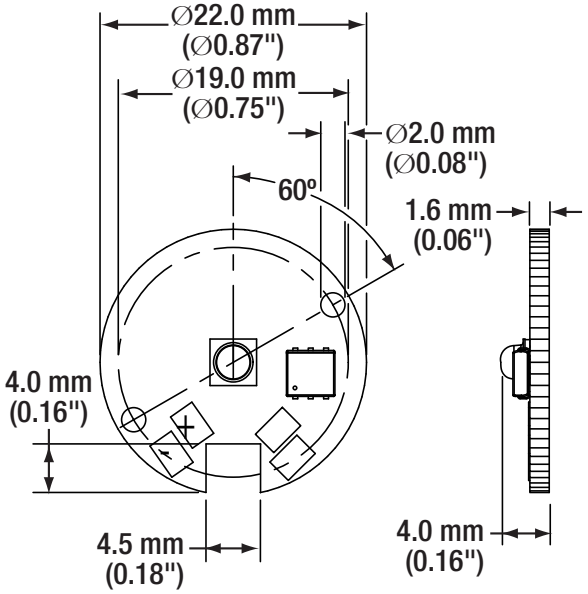
Performance Plots

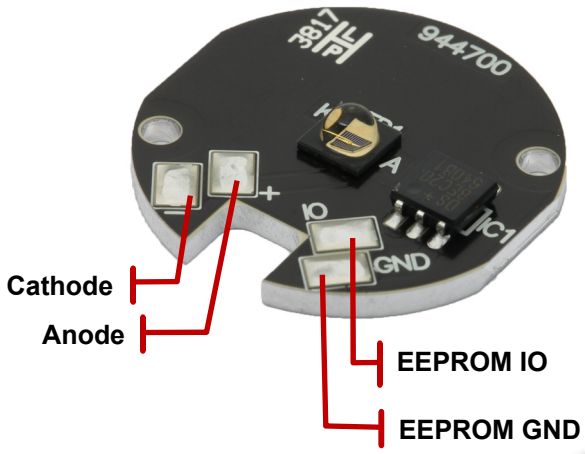






Drawing and Electrical Connections





Power Supply

We recommend using Thorlabs' DC2200 or LEDD1B LED current drivers (for control of a single LED). Alternatively, the DC4100 or DC4104 current driver can be used with the DC4100-HUB, which allows simultaneous control of up to 4 individual LEDs.

If you decide to use your own DC source, please make sure that the operating current does not exceed the maximum allowed value, sufficient forward voltage is supplied, and that the correct connection is made to Pins 1 and 2.

Maintenance and Service

This LED is not water resistant and must be protected from adverse weather conditions. To avoid damage, do not expose it to spray, liquids, or solvents. The LED does not contain any parts serviceable by the user and does not require regular user maintenance. If a malfunction occurs, contact Thorlabs for return instructions.

Warnings and Safety

Inappropriate use of any LED product may result in permanent eye damage. To prevent injury, use this product in accordance with the International Standard "Photobiological Safety of Lamps & Lamp Systems" IEC 62471. This product falls under Risk Group RG0 – Exempt Group in accordance to the standard IEC 62471:2006.

If using this LED in a microscope application as a replacement for mercury vapor lamp, the same precautions should be taken.

Please note that this product is not suitable for household room illumination.

This LED must not be operated in explosive environments and should only be used with shielded connection cables.

All statements regarding safety of operation and technical data only apply when the unit is operated correctly according to its specifications. The safety of any system incorporating the equipment is the responsibility of the assembler of the system.

CAUTION!

TO ENSURE PROPER HEAT MANAGEMENT, MOUNT THE METAL CORE PRINTED CIRCUIT BOARD (MCPCB) TO AN ADEQUATE HEAT SINK