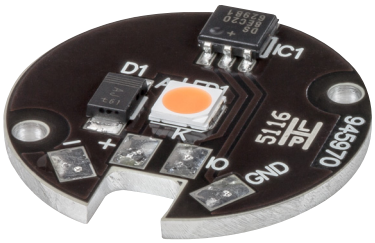
MCPCB-Mounted LED, Purple 455 nm and 640 nm



MPRP1D2

Description

This Thorlabs LED on a Metal-Core Printed Circuit Board (MCPCB) is designed to provide high-power output in a compact package. For 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	Purple
Nominal Wavelength	455 nm (12.5%[a]) / 640 nm
Bandwidth (FWHM)	N/A
Viewing Angle (Full Angle)	115°
Test Current for Typical Power	300 mA
Maximum Current (CW)	300 mA
Electrical Power (Max)	930 mW
Typical Lifetime	>10 000 h
Chip Size	1 mm x 2 mm
MCPCB Thickness	1.6 mm
Operating Temperature (Non-Condensing)	0 to 40 °C
Storage Temperature	-40 to 70 °C
Risk Group[b]	RG1 – Low Risk Group

a. Percentage of LED intensity that emits in the blue portion of the spectrum, from 400 nm to 525 nm.

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

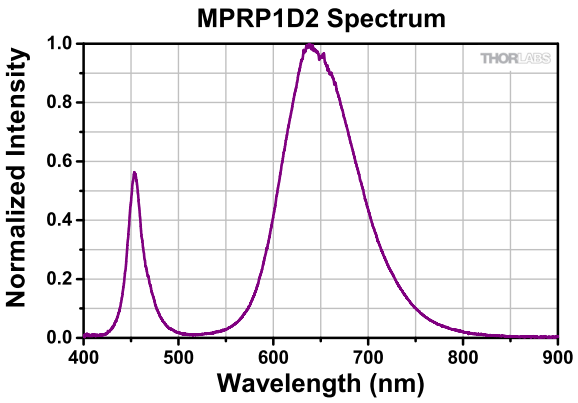
MPRP1D2				
	Symbol	**Min**	**Typical**	**Max**
Nominal Wavelength	-	-	455 nm (12.5%[a]) / 640 nm	-
LED Output Power[b]	P_{out}	275 mW	325 mW	-
Forward Voltage	V_F	-	3.1 V	-
Maximum Irradiance[c]	E_e	-	3.7 µW/mm²	-

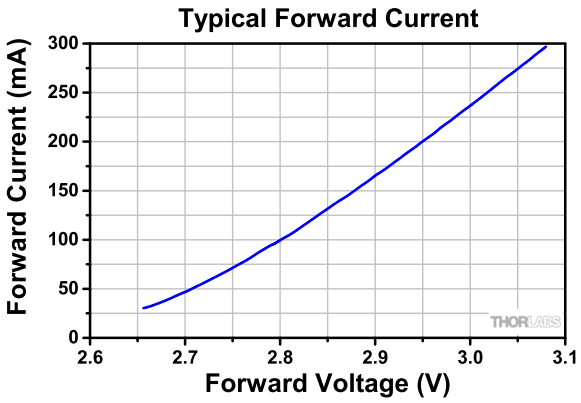
a. Percentage of LED intensity that emits in the blue portion of the spectrum, from 400 nm to 525 nm.

b. When Driven with the Test Current

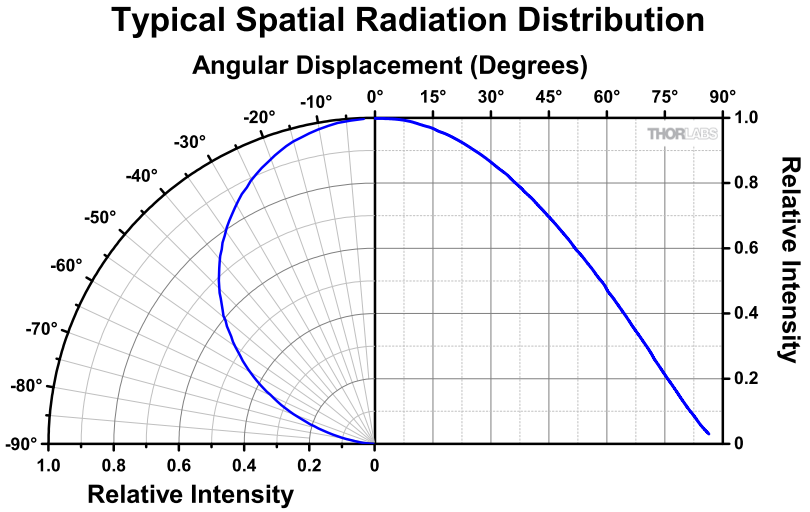
c. Measured at a Distance of 200 mm

Performance Plots

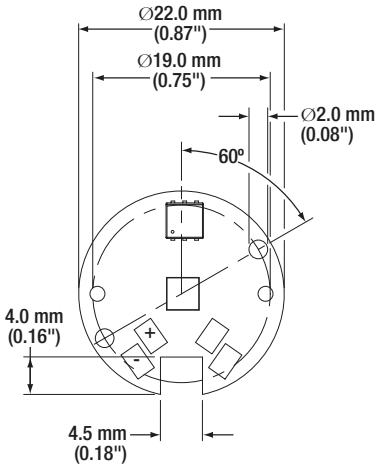


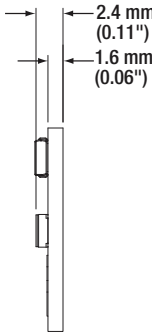


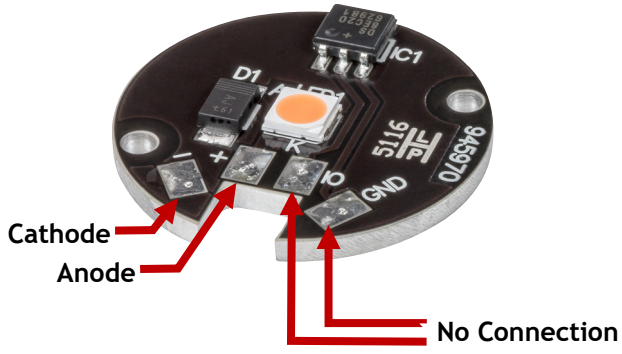
For the bare LED.



Drawings and Electrical Connections







Power Supply

Please see the Thorlabs website for the available LED Drivers. When selecting the LED Driver, please ensure that:

- The operating current never exceeds the Maximum Current specified in the LED Specification table.
- Sufficient forward voltage is supplied.

If you decide to use your own DC source, please ensure 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. This LED does not contain any parts serviceable by the user and does not require regular user maintenance. Do not open the enclosure. If a malfunction occurs, contact Thorlabs for return instructions.

Warnings and Safety

During normal operations, the casing temperature may exceed ambient temperature by as much as 25 °C (45 °F). To prevent higher case temperatures, the product should be operated without anything hindering air movement around the convective cooling fins.

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.

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 RG1 – Low Risk 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.

Visible / IR Radiation Warning Statement

This LED emits intense IR/visible radiation during operation. Precautions must be taken to prevent looking directly at the IR/visible light. If viewing the IR/visible light directly is necessary, (IR/visible) protective glasses must be worn to avoid eye damage. Do not look directly into the IR/visible light or look through the optical system during operation, as this can be harmful to the eyes, even for brief periods of exposure, due to the high intensity of the IR/visible light.