High-Power LED for Microscopy, UV (365 nm)

SOLIS-365C

Description

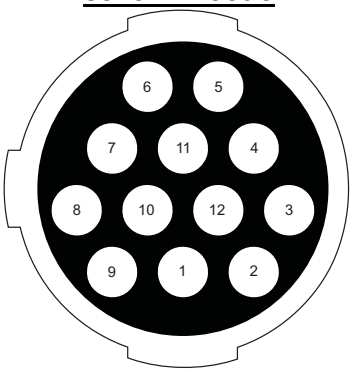
The SOLIS-365C LED is a high-power LED designed for microscopy applications. This UV LED has a nominal wavelength of 365 nm and provides at least 3.0 W of output power. The LED should be driven with a constant current and a forward voltage that do not exceed 4500 mA and 4.0 V, respectively. The output of the LED is SM2 (2.035″-40) threaded for compatibility with Thorlabs' microscope port and thread adapters. The included collimating optic provides a large clear aperture of Ø48.3 mm (Ø1.90").

Specifications

SOLIS-365C[a]	
Color	UV
Dominant Wavelength	365 nm
Emitter Size	2 mm x 2 mm
Test Current for Typical Power	4500 mA
Max Current (CW)	4500 mA
Electrical Power	18 W
Bandwidth (FWHM)	10 nm
Typical Lifetime	>12 000 hours
Operating Temperature (Non-Condensing)	0 to 40 °C
Storage Temperature	-40 to 70 °C
Clear Aperture	Ø48.3 mm (Ø1.90")
Included Collimation Lenses[b]	LB1723-A and ACL25416U-A
Included Diffuser[c]	DG20-1500
Risk Group[d]	RG3 - High Risk Group

a. The specifications listed in the table are nominal values.
b. The collimating lens is installed prior to shipping
c. The included diffuser must be installed by the user if required.
d. According to the standard IEC 62471:2006, Photobiological Safety of Lamps and Lamp Systems.

Solis Pin Code



Pin	Connection	Pin	Connection
1	LED Cathode	**7**	LED Anode
2	LED Cathode	**8**	LED Cathode
3	Not Used	**9**	LED Cathode
4	LED Anode	**10**	Not Used
5	LED Anode	**11**	EEPROM I/O
6	LED Anode	**12**	EEPROM Ground

SOLIS-365C				
	Symbol	**Min**	**Typical**	**Max**
Peak Wavelength	λ_p	360 nm	365 nm	370 nm
Collimated Output Power[a]	P_{out}	3.0 W	4.0 W	-
Forward Voltage	V_F	-	-	4.0 V
Maximum Irradiance[b]	E_e	-	2.8 mW/mm^2	-

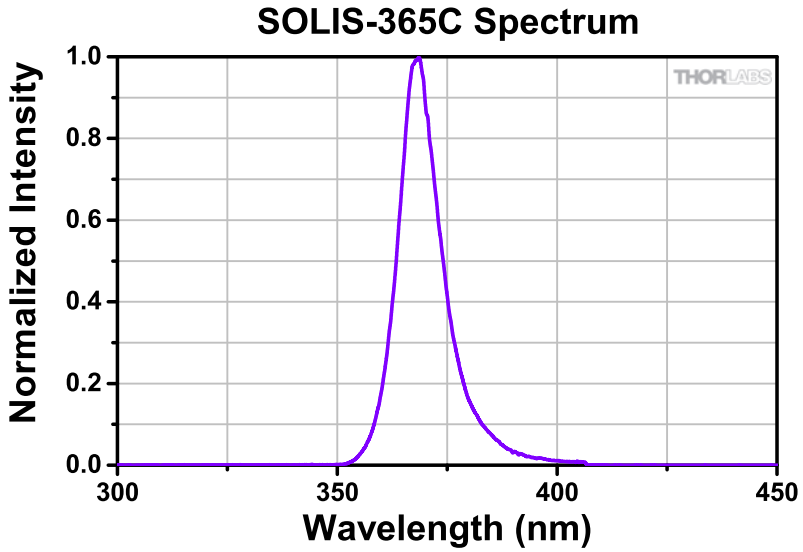
a. When Driven with the Test Current
b. Measured at a Distance of 200 mm

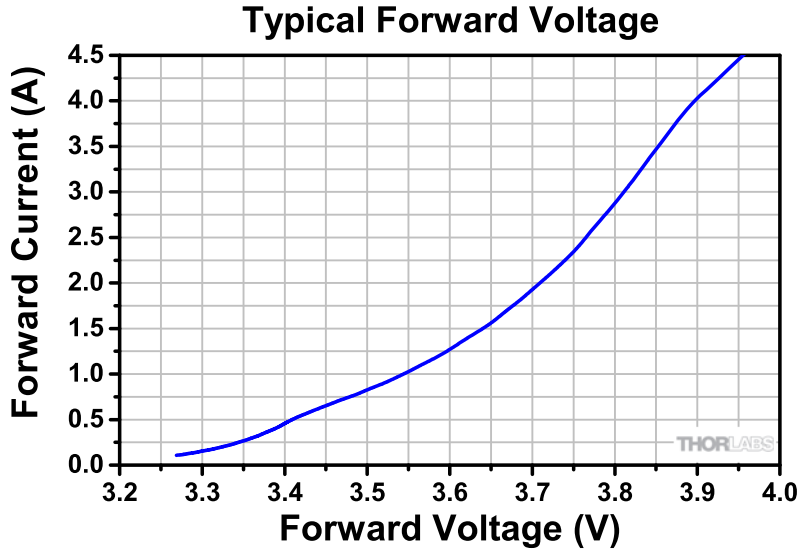
Operating Instructions

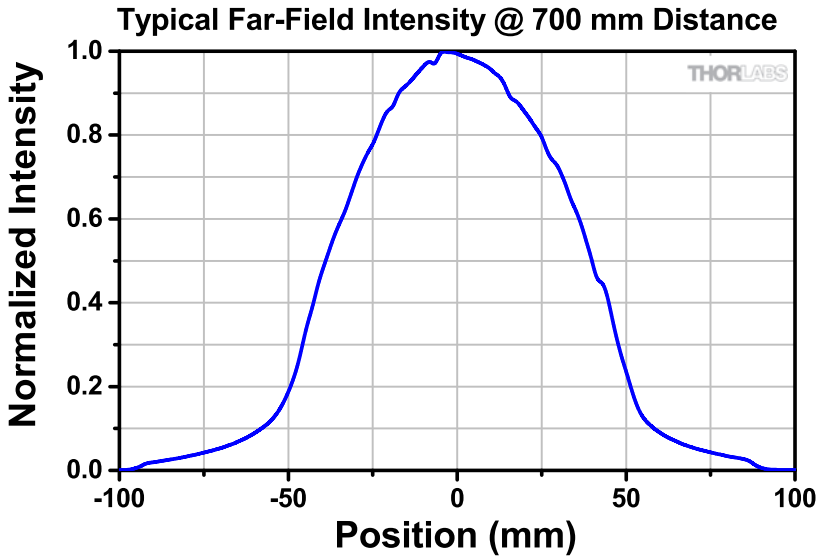
Each LED has a characteristic switch-on behavior that is dependent on the LED properties and environmental conditions. Efficient heat dissipation is important for optimal performance. Operate the LED in an area with proper ventilation in order to avoid overheating, drops in optical power, and reduced lifetime. The LED is designed to shut down if the internal temperature reaches 95 °C to prevent damage to the emitter.

A diffuser is included with each LED which can be placed in front of the beam to create a more uniform beam profile. To install, insert the diffuser in front of the installed collimation lens and secure with an SM2 retaining ring using an SPW604 Spanner Wrench. Be sure that the LED is turned off and the housing is cool to the touch before making this adjustment.

Performance Plots







Power Supply

We recommend using Thorlabs' DC2200 LED driver to power this LED. 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 pin connections are made.

Maintenance and Service

This LED is not water resistant and must be protected from adverse weather conditions. To avoid damage, do not expose them to spray, liquids, or solvents. Additionally, 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

Inappropriate use of any High-Power 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 RG3 - High 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.

This LED is passively cooled via a heat sink. Under normal operating conditions, the housing of the LED will not exceed 60 °C, but internal heat sink will become hotter. The LED will automatically shut down if the internal temperature reaches 95 °C.

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.

Warning Statement

This LED radiates intense UV light during operation. Precautions must be taken to prevent looking directly at the light. If viewing the LED is necessary, light protective glasses must be worn to avoid eye damage. Do not look directly into the LED 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 light.