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THORLABS

LED3400W - February 17, 2023

Item # LED3400W was discontinued on February 17, 2023. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

UNMOUNTED LEDS

- LEDs in the UV, Visible, or IR Spectral Ranges
- Broadband Light Sources
- Compatible with Versatile LED Mounts

T-1 3/4 Package

TO-18 Package with Glass Lens

TO-46 Package with Glass Lens

TO-39 Package UV LED with Ball

TO-18 Package with Glass Cover

TO-39 Package with Window

TO-39 Package UV LED with Aspheric Glass Lens

TO-18R Package

TO-39 Package with Glass Lens

Application Idea

TO-18 LED Shown in LEDMF Mount (Post Not Included)

LEDMT1E USB-Powered LED Mount

[Hide Overview](#)

OVERVIEW

Features

- Unmounted LEDs in TO-Can Packages
- Wide Range of Center Wavelengths Available (See Table to the Right)
  - Single-Color LEDs from 250 nm to 4.5 µm
  - Multi-Color LEDs
  - White Light LEDs (430 - 660 nm)
- LED Output Powers Ranging from 6 µW to 170 mW
- Select LEDs Sold in Packs of 5
- Mounting Options (Post Mountable or SM Threaded) and LED Socket Available
- Other LED Configurations Include Mounted LEDs, Fiber-Coupled LEDs, and Collimated LEDs (See *LED Selection Guide* Tab for Full List of Options)

Click to Enlarge
LED630E Red LED Mounted in an LEDMT1F USB-Powered LED Mount Using an LMR05 Lens Mount

Quick Links
UV with Ball Lens (250 - 275 nm)
UV (260 - 405 nm)
Visible (430 - 680 nm)
IR (750 - 1600 nm)
MIR (1650 - 4500 nm)
Multi Color
White Light (430 - 660 nm)
USB-Powered LED Mounts
LED Mounts
LED Socket

Light-emitting diodes (LEDs) are compact, energy-efficient light sources that can emit light over a wide range of wavelengths. Thorlabs offers unmounted LEDs for center wavelengths from 250 nm to 4.5 µm. These unmounted LEDs are available epoxy-encased in T-1 3/4 packages or in a variety of TO-can style housings, including TO-18, TO-46, TO-39, Ø9 mm, and TO-18R. A selection of the UV LEDs have ball lenses that focus the output into a narrow viewing half angle of no more than 7.5°, while the other LEDs that are in TO-can style packages are offered with flat windows, glass covers, glass lenses, or parabolic retroreflectors.

Use the Quick Links table to the right to view LEDs within a specific wavelength range. General information about each LED is provided in the tables to compare specifications. Complete specifications and a spectrum plot are provided in the spec sheets, which can be accessed by clicking on the red docs icon ( ) next to the Item # below.

Due to unmounted LEDs typically having significant divergence angles, the output light frequently needs to be focused through a lens for use within an experimental setup. Aspheric condenser lenses (available uncoated for 380 - 2100 nm or with an AR coating for 350 - 700 nm or 650 - 1050 nm) are ideal for collimating the light from our unmounted LEDs with a center wavelength from 405 nm to 1600 nm. Unmounted LEDs with center wavelengths from 1650 nm to 4500 nm feature parabolic reflectors that reduce the output divergence angle. The *Characterization* tab describes sample methods and equipment for characterizing the light output from the majority of LEDs offered on this page. To discuss other options, please contact Tech Support.

If you do not see an LED with the wavelength/color, optical power, or viewing angle desired, please contact Tech Support, and we will work to obtain one for you and consider adding it to our permanent offerings.

Hide Characterization

C H A R A C T E R I Z A T I O N

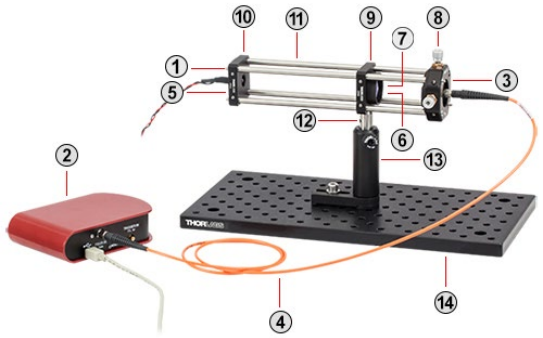
Light-Emitting Diode (LED) Characterization Methods

Thorlabs offers the items and equipment necessary to characterize the light emission properties of the majority of LEDs sold on this page. The different specifications which may be determined using the methods and equipment below are:

- Spectral Distribution
- Full Width at Half Maximum (FWHM)
- Radial Intensity Distribution
- Half Viewing Angle
- Forward Radiated Optical Power
- Total Optical Power

Measurement Technique for Spectral Distribution and FWHM

A CCS200(/M) Fiber-Coupled Compact Spectrometer connected to a computer can be used to measure the spectral response of LEDs in the UV*/visible wavelength range (200 - 1000 nm; for LEDs emitting in NIR, use the OSA202C). The LED may be powered by an LD1255R Laser Diode Driver operating in constant current mode. The light from the LED is focused by an LB1761 Bi-Convex Lens, f = 25.4 mm, into a Ø50 µm core multimode fiber patch cable with SMA905 connectors attached to the spectrometer.



Click to Enlarge

#	Imperial Item #	Metric Item #	Product Description	Qty.
Visible LEDs (245 nm - 940 nm)				
1	-		LED (245 nm - 940 nm)[a]	1
2[b]	CCS200	CCS200/M	Compact Spectrometer, Extended Range: 200 - 1000 nm	1
3	SM1SMA		SMA Fiber Adapter Plate	1
4	M14L01		Ø50 µm, SMA905 Fiber Patch Cable	1
NIR LEDs (635 nm - 1650 nm)				
1	-		LED (635 nm - 1650 nm)[a]	1
2	OSA202C		Optical Spectrum Analyzer, Wavelength Range: 600 - 1700 nm	1
3	SM1FC		FC/PC Fiber Adapter Plate	1
4	M42L01		Ø50 µm, FC/PC Fiber Patch Cable	1

General				
5	S05LEDM		SM05 LED Mount	1
6	LB1676		N-BK7 Bi-Convex Lens, Ø1", f = 100.0 mm	1
7	SM1L03		SM1 Lens Tube, 0.3" Thread Depth	1
8	CXY1A[c]		XY Translating Lens Mount for Ø1" Optics	1
9	CP33	CP33/M	SM1-Threaded 30 mm Cage Plate	1
10	CP32	CP32/M	SM05-Threaded 30 mm Cage Plate	1
11	ER8-P4		Cage Assembly Rods, 8" Long, Ø6 mm, 4 Pack	1
12	TR2	TR50/M	Ø1/2" x 2" (50 mm) Stainless Steel Optical Post	1
13	UPH3	UPH75/M	Universal Post Holder, 3" (75 mm)	1
14	MB612	MB1530/M	Aluminum Breadboard, 6" x 12" (150 mm x 300 mm)	1
15	HW-KIT2	HW-KIT2/M	1/4"-20 (M6) Cap Screw and Hardware Kit	1

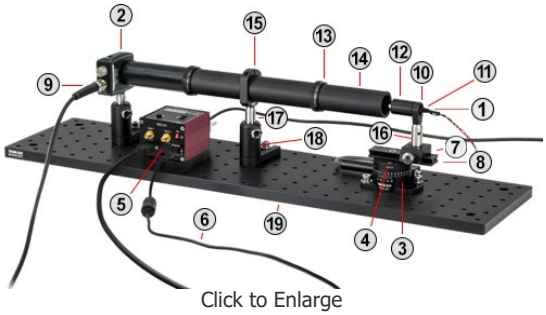
- a. The wire connected to the LED is for illustrative purposes only, and electrical connections must be made by the user. LEDs also require a separate power supply or driver. Thorlabs offers compatible LD1255R and DC2200 Drivers.
- b. Please note that the CCS200 is shown in the photo to the left.
- c. The previous generation CXY1 Translating Lens Mount is shown in the photo to the left.

*Please note that the CCS200 spectrometer cannot be amplitude calibrated below 380 nm. When performing broadband power measurements, a large difference in the relative response of the system from the UV to the visible inhibits reliable power readings in the UV.

Measurement Technique for Radial Intensity Distribution and the Half Viewing Angle

To make a measurement of the intensity pattern as a function of angle, the LED can be rotated on an axis perpendicular to the axis along which the emitted light intensity is the greatest. Goniometric rotation of the LED is achieved by mounting the LED on a post attached to a Motorized Rotation Stage so that the rotation axis goes through the light emitting surface of the LED. The stage is controlled by a brushed DC servo motor, such as our KDC101, while the LED is powered by an LD1255R Laser Diode Driver. The radiated light is detected using either a Si or Ge Photodetector, DET36A2 or DET30B2 respectively, located approximately 12 inches from the LED. The S05LEDM LED Mount is recessed within the SM05M10 Lens Tube such that the front of the LED is centered above the center of the rotation stage. To keep stray or scattered light from hitting the detector, SM1 Lens Tubes are attached to the detector that extends to just short of the LED. Two SM1D12C Iris Apertures are placed along the path from the LED to the detector. The iris closer to the LED has an aperture diameter of 10 mm while the aperture nearest the detector has a diameter of 3 mm.

As the LED rotates, the output of the photodiode detector, which is proportional to the light intensity, is recorded for each angular position using a data acquisition card. The LED is rotated from +90° to -90°, where 0° approximately corresponds to when the axis of maximum intensity is parallel to the detector axis. The half viewing angle specification is determined by the angle that corresponds to a 50% drop from the maximum detector output.



Click to Enlarge

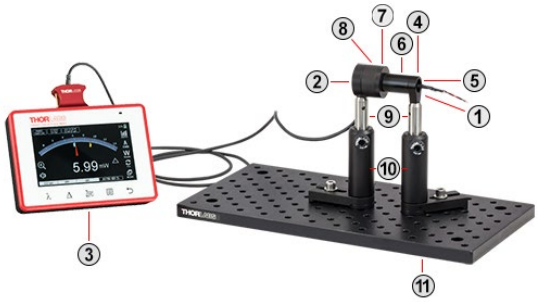
#	Imperial Item #	Metric Item #	Product Description	Qty.
Visible LEDs (365 nm - 1070 nm)				
1	-		LED (365 nm - 1070 nm)[a]	1
2	DET36A2		Silicon Photodetector Wavelength Range: 350 - 1100 nm	1

NIR LEDs (850 nm - 1750 nm)				
1	-		LED (850 nm - 1750 nm)[a]	1
2	DET30B2		Germanium Photodetector Wavelength Range: 800 - 1800 nm	1
General				
3	-		Motorized Rotation Stage	1
4	CR1A	CR1A/M	CR1 Adapter Plate	1
5	KDC101		K-Cube™ DC Servo Motor Controller	1
6	KPS201[b]		15 V Power Supply for One K- or T-Cube™	1
7	RC1		Rail Carrier, 1" x 1"	1
8	RLA0300	RLA075/M	Dovetail Optical Rail, 3" (75 mm)	1
9	2249-C-36		BNC Coaxial Cable, BNC Male to BNC Male	1
10	LMR05S	LMR05S/M	Ø1/2" Lens Mount with Internal and External SM05 Threads	1
11	S05LEDM		SM05 LED Mount	1
12	SM05M10		SM05 Lens Tube without External Threads, 1" Long	1
13	SM1D12C		Graduated, Ring-Activated SM1 Iris Diaphragm	2
14	SM1L30		SM1 Lens Tube, 3" Thread Depth	4
15	SM1RC	SM1RC/M	SM1 Series Slim Lens Tube Slip Ring	1
16	TR1	TR30/M	Ø1/2" x 1" (30 mm) Stainless Steel Optical Post	1
17	TR2	TR50/M	Ø1/2" x 2" (50 mm) Stainless Steel Optical Post	2
18	UPH2	UPH50/M	Universal Post Holder, 2" (50 mm)	2
19	MB624	MB1560/M	Aluminum Breadboard, 6" x 24" (150 mm x 600 mm)	1
20	HW-KIT2	HW-KIT2/M	1/4"-20 (M6) Cap Screw and Hardware Kit	1

- a. The wire connected to the LED is for illustrative purposes only, and electrical connections must be made by the user. LEDs also require a separate power supply or driver. Thorlabs offers compatible LD1255R and DC2200 Drivers.
- b. The photo to the left shows a previous-generation KPS101 Power Supply.

Measurement Technique for Determining the Forward Radiated Optical Power

The total forward radiated power of the LED can be measured using a PM400 Power and Energy Meter with an S120VC Power Sensor (for UV/visible wavelength LEDs) or S122C Power Sensor (for NIR LEDs). See the picture below.



Click to Enlarge

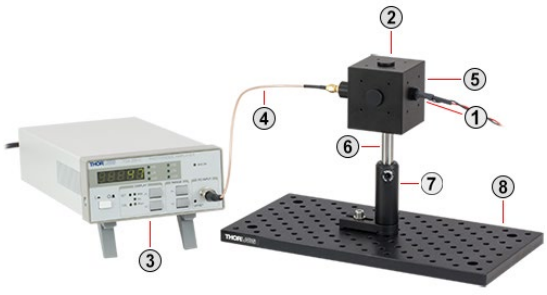
#	Imperial Item #	Metric Item #	Product Description	Qty.
Visible LEDs (245 nm - 1070 nm)				
1	-		LED (245 nm - 1070 nm)[a]	1
2	S120VC		Photodiode Power Sensor, Si Wavelength Range: 200 - 1100 nm	1

NIR LEDs (780 nm - 1750 nm)				
1	-		LED (780 nm - 1750 nm)[a]	1
2	S122C		Photodiode Power Sensor, Ge Wavelength Range: 700 - 1800 nm	1
General				
3	PM400		Touch Screen Power and Energy Meter	1
4	LMR05S	LMR05S/M	Ø1/2" Lens Mount with Internal and External SM05 Threads	1
5	S05LEDM		SM05 LED Mount	1
6	SM05M10		SM05 Lens Tube without External Threads, 1" Long	1
7	SM1A1		Adapter with External SM05 Threads and Internal SM1 Threads	1
8	SM1L05		SM1 Lens Tube, 0.5" Thread Depth	1
9	TR2	TR50/M	Ø1/2" x 2" (50 mm) Stainless Steel Optical Post	2
10	UPH3	UPH75/M	Universal Post Holder, 3" (75 mm)	2
11	MB612	MB1530/M	Aluminum Breadboard, 6" x 12" (150 mm x 300 mm)	1
12	HW-KIT2	HW-KIT2/M	1/4"-20 (M6) Cap Screw and Hardware Kit	1

- a. The wire connected to the LED is for illustrative purposes only, and electrical connections must be made by the user. LEDs also require a separate power supply or driver. Thorlabs offers compatible LD1255R and DC2200 Drivers.

Measurement Technique for Determining the Total Optical Power

The total optical output power of an LED can be measured using an integrating sphere. The radiated light is detected using either a Silicon (for UV or visible wavelength LEDs) or InGaAs (for NIR LEDs) Photodiode and Integrating Sphere, such as the IS200 with SM05PD2A or IS210C, respectively. The sphere may be calibrated with a laser source such as the Thorlabs CPS635R Laser Diode Module. The output of the photodiode can be amplified and measured using our PDA200C Benchtop Photodiode Amplifier.



Click to Enlarge

#	Imperial Item #	Metric Item #	Product Description	Qty.
Visible LEDs (245 nm - 1070 nm)				
1	-		LED (245 nm - 1070 nm)[a]	1
2	IS200 SM05PD2A		Ø2" Integrating Sphere, Si Photodiode, Wavelength: 200 - 1100 nm	1
NIR LEDs (850 nm - 1750 nm)				
1	-		LED (850 nm - 1750 nm)[a]	1
2	IS210C		Ø2" Integrating Sphere, InGaAs Sensor, Wavelength Range: 800 - 1800 nm	1
General				
3	PDA200C		Benchtop Photodiode Amplifier	1

4	CA2806		SMA Coaxial Cable, SMA to BNC	1
5	S05LEDM		SM05 LED Mount	1
6	TR2	TR50/M	Ø1/2" x 2" (50 mm), Stainless Steel Optical Post	1
7	UPH3	UPH75/M	Universal Post Holder, 3" (75 mm)	1
8	MB612	MB1530/M	Aluminum Breadboard, 6" x 12" (150 mm x 300 mm)	1
9	HW-KIT2	HW-KIT2/M	1/4"-20 (M6) Cap Screw and Hardware Kit	1

- a. The wire connected to the LED is for illustrative purposes only, and electrical connections must be made by the user. LEDs also require a separate power supply or driver. Thorlabs offers compatible LD1255R and DC2200 Drivers.

Hide DIY USB LED

DIY USB LED

Do-It-Yourself USB LED

A Universal Serial Bus (USB) port can be used to quickly power many of the Light Emitting Diodes (LEDs) on this page for temporary use. USB ports are used in a variety of applications like charging batteries and transferring data; they are commonly found on computers, but they are increasingly found on other electronic devices, and even incorporated into wall outlets. This tab presents a step-by-step tutorial to take advantage of this port in order to power an LED. Take note of the spec sheet for the LED being used; if its Typical Forward Voltage is listed higher than 5 V, the LED will not be able to be powered by a USB port (this is explained using Equation 2 below). Spec sheets can be downloaded by clicking on the ( ) icon next to desired item.

Click to Enlarge
A LED630L being powered by the USB port in a laptop.

Example Application

It is possible to create a continuous lighting setup using an LED525L from the Thorlabs catalog, powered by a USB port. A 100 Ohm resistor should be used for this system. For an explanation on how this was determined, see Equations 3 and 4 below.

Warning

This tutorial contains instructions that require the creation of an electrical circuit, including the use of a soldering iron. Please be advised that the user is fully responsible for following proper practices with regards to creating an electric circuit when following this procedure. For other LED power solutions, visit our selection of current controllers for LEDs

Procedure (Click Images for Details)

1. Prepare Wire

If the chosen USB wire is repurposed with two ends, unplug both ends and cut off the non-Type A Male end, leaving as much slack on the Type A Male end as possible using Wire Cutters.

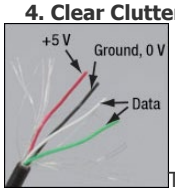
2. Prepare Heat Shrink

If heat shrink tubing will be utilized, place a length of two inches down the wire for later.

3. Strip Outer Casing

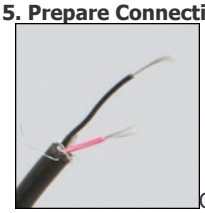
Strip the outer plastic about two inches from the end, being careful not to cut too far into the wire.

4. Clear Clutter



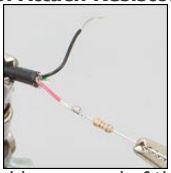
The wire will contain shielding and four smaller wires: Red (+5 V), Black (Ground, 0 V), White and Green. The latter two wires are used for data transfer.

5. Prepare Connections



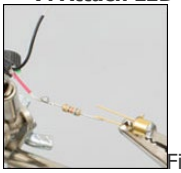
Cut away an inch of the red wire, any exposed shielding, and the white and green wires down to

6. Attach Resistor



Solder one end of the resistor (resistors are bidirectional, either end will do) to the red wire. The end of the resistor's lead and the

7. Attach LED



Find the positive pin on the LED, the anode, which can be found on the LED's Spec Sheet, and solder it to the resistor.

Parts List

Components:

- An Unmounted LED
- A Type-A Male Connector USB Wire with Pigtails
- A Resistor (See *Choosing a Resistor*)
- (Optional) 5 VDC External Battery Pack (CPS1)
- (Optional) Repurposed USB with Type-A Male Connector (USB-C-36)

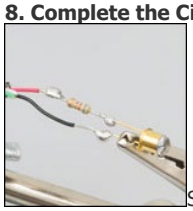
Tools:

- Wire Strippers

the main wire's remaining outer plastic while stripping the Red and Black wires to give enough room for a solder joint.

black wire should be roughly the same length.

8. Complete the Circuit



Solder the remaining, negative end of the LED, the cathode, to the black wire.

- Electrical Tape
- Soldering Iron
- Solder
- Helping Hand
- (Optional) Heat Shrink Tubing
- (Optional) Heat Gun or Hair Dryer

9. Insulate Connections

Once the solder has cooled, wrap each connection separately in a layer of electrical tape. **Warning**: Improper insolation of exposed metal can lead to shorting of the circuit, electrical failure, or fire.

10. Clean Finish

Either cover the wrapped wires in electrical tape, or, if heat shrink tubing was placed down the wire, slide it up over the connections, and slowly heat with a heat gun or hair dryer until it snugly fits over the connections.

Thorlabs offers the AFS900, an adjustable stripping tool.

Choosing a Resistor

USB ports can produce up to 500 mA or higher in some cases, which is too much current for most LEDs. For this reason, an LED connected directly to a USB cable will burn out within a matter of hours. Placing a resistor before the LED in the circuit will reduce the current coming from the USB port, and allow the LED to operate.

To find the best resistor for the job, start with Ohm's Law, which gives the voltage across a wire,

$$V=IR \text{ (Equation 1)},$$

where V is Voltage, I is Current, and R is Resistance.

V here will be the difference between our voltage output from our source (V_s), and the forward voltage of our LED (V_f), found on the chosen LEDs spec sheet. V_f can be thought of as a threshold the current needs to overcome to get the LED to light up. Replacing the difference into Equation 1 yields

$$(V_s-V_f)=IR \text{ (Equation 2)}.$$

I will match the operating current for our LED, found on the chosen LEDs spec sheet; rearranging the equation for R yields

$$R=(V_s-V_f)/I \text{ (Equation 3)}.$$

Choose the resistor that is the closest match rounding up.

Looking at the specification sheet for the LED525:, the Maximum DC Forward Current is 30 mA and the Typical Forward Voltage is 3.0 V[a]. To keep the LED running at a current lower than the maximum, 20 mA will be chosen for the current. Knowing that a USB port has a 5 V potential, Equation 3 results in the following:

$$R=(V_s-V_f)/I = (5 \text{ V}-3 \text{ V})/.02 \text{ A} = 100 \text{ Ohm (Equation 4)}.$$

A 100 Ohm resistor is a standard size, so no rounding up is needed.

- The Forward Voltage is rated at 50mA. This is because the Pulsed Forward Currents can be higher than 30 mA.

Portable Battery Pack

This system can be mobile with the addition of a 5 VDC External Battery Pack (CPS1), which is sold by Thorlabs. This device acts just like any other USB Type A female port. Alternatively, a battery holder can be hard wired on as long as the batteries supply a higher voltage than the LED's forward voltage V_f. In the case of adding a battery holder, Equation 3 is still applied, except changing the V_s to the batteries voltage. It may also be beneficial to add a switch to your circuit, so that way the LED can be switched on and off without needing to remove it from the power supply.

Powering Multiple LEDs

If more than one LED is needed, they can be combined in either series or parallel. If placed in series, LEDs' V_f will stack, requiring a larger V_s. A parallel configuration is more advantageous for LEDs; in this configuration, more current is needed from the power source, but the V_f can be satisfied on an individual basis by V_s. While in parallel, it is also very important that each LED has its own resistor, calculated as if each LED was independently connected to the battery, or the system will risk a total burn out if one LED fails, as each remaining LED would attempt to bear the current of the dead LED.

Hide LED Selection Guide

LED SELECTION GUIDE

This tab includes all LEDs sold by Thorlabs. Click on *More [+]* to view all available wavelengths for each type of LED pictured below.

Light Emitting Diode (LED) Selection Guide						More [+]
Click Photo to Enlarge (Representative; Not to Scale)						
Type	**Unmounted LEDs**	**Pigtailed LEDs**	**LEDs in SMT Packages**	**LED Arrays**	**Cage-Compatible Diffuse Backlight LED**	

Light Emitting Diode (LED) Selection Guide						More [+]
Click Photo to Enlarge (Representative; Not to Scale)						
Type	**PCB-Mounted LEDs**	**Heatsink-Mounted LEDs**	**Collimated LEDs for Microscopy[b]**	**Fiber-Coupled LEDs[c]**	**High-Power LEDs for Microscopy**	**Multi-Wavelength LED Source Options[d]**

- a. Measured at 25 °C
- b. These Collimated LEDs are compatible with the standard and epi-illumination ports on the following microscopes: Olympus BX/IX (Item # Suffix: -C1), Leica DMI (Item # Suffix: -C2), Zeiss Axioskop (Item # Suffix: -C4), and Nikon Eclipse (Bayonet Mount, Item # Suffix: -C5).
- c. Typical power when used with MM Fiber with Ø400 µm core, 0.39 NA.
- d. Our Multi-Wavelength LED Sources are available with select combinations of the LEDs at these wavelengths.
- e. Typical power for LEDs with the Leica DMI collimation package (Item # Suffix: -C2).
- f. Minimum power for the collimated output of these LEDs. The collimation lens is installed with each LED.
- g. Typical power for LEDs with the Olympus BX and IX collimation package (Item # Suffix: -C1).
- h. Typical power for LEDs with the Nikon Eclipse collimation package (Item # Suffix: -C5).
- i. Percentage of LED intensity that emits in the blue portion of the spectrum, from 400 nm to 525 nm.
- j. Typical power for LEDs with the Zeiss Axioskop collimation package (Item # Suffix: -C4).

Hide UV LEDs with Ball Lens (250 - 275 nm)

UV LEDs with Ball Lens (250 - 275 nm)

Item #	Info	Peak Wavelength[a]	Optical Power (Min)[b]	Spectral FWHM[a]	Viewing Half Angle[a]	Max DC Forward Current[c]	Package[d]
LED250J		250 nm	1 mW	12 nm	7.5°	100 mA	TO-39
LED255J		255 nm	1 mW	12 nm	7.5°	100 mA	TO-39
LED260J		260 nm	1 mW	12 nm	7.5°	100 mA	TO-39

LED275J		275 nm	1 mW	12 nm	7.5°	100 mA	TO-39

- a. Typical values unless otherwise noted.
- b. At 100 mA.
- c. Temperature: 25 °C
- d. We recommend mounting these LEDs in S1LEDM LED Mounts with HSLT2 Passive Heat Sink Lens Tubes.

Part Number	Description	Price	Availability
LED250J	**250 nm LED with Ball Lens, 1 mW (Min), TO-39**	**$430.16**	**Today**
LED255J	**255 nm LED with Ball Lens, 1 mW (Min), TO-39**	**$382.98**	**Today**
LED260J	**260 nm LED with Ball Lens, 1 mW (Min), TO-39**	**$395.01**	**Today**
LED275J	**275 nm LED with Ball Lens, 1 mW (Min), TO-39**	**$392.52**	**Today**

Hide Single-Color UV LEDs (255 - 405 nm)

Single-Color UV LEDs (255 - 405 nm)

Item #	Wavelength[a,b]	Optical Power[a,c]	Spectral FWHM[a]	Viewing Half Angle[a]	Max DC Forward Current[d]	Package
LED255W	255 nm	0.4 mW	11 nm	60°	30 mA	TO-39
LED260W	265 nm	1 mW	11 nm	60°	30 mA	Ø9 mm
LED275W	275 nm	1.6 mW	11 nm	60°	30 mA	Ø9 mm
LED280W	280 nm	2.3 mW	12 nm	57°	40 mA	TO-39
LED285J	285 nm[e]	1.3 mW[d]	11 nm[c,d]	6°[c,d]	30 mA[d]	TO-39
LED285W	285 nm[f]	1.6 mW	11 nm	60°	30 mA	Ø9 mm
LED290W	290 nm	1.6 mW	11 nm	60°	30 mA	Ø9 mm
LED295W	295 nm	1.2 mW	11 nm	60°	30 mA	TO-39
LED300W	300 nm	1.2 mW	11 nm	60°	30 mA	Ø9 mm
LED310W	310 nm[f]	1.5 mW	15 nm	57°	40 mA	TO-39
LED325W2	325 nm[f]	1.7 mW	11 nm	57°	40 mA	TO-39
LED340W	340 nm[f]	1.7 mW	9 nm	57°	40 mA	TO-39
LED341W	340 nm	0.33 mW	15 nm	60°	20 mA	TO-39
LED375L	375 nm[f]	1 mW	10 nm	20°	30 mA	TO-18
LED370E	375 nm	2.5 mW	10 nm	19°	30 mA	T-1 3/4
LED385L	385 nm[f]	5 mW	12 nm	16°	30 mA	TO-18
LED395L	395 nm[f]	6 mW	15 nm	16°	30 mA	TO-18
LED405L	405 nm[f]	6 mW	20 nm	17°	30 mA	TO-18
LED405E	405 nm	10 mW	15 nm	5°	30 mA	T-1 3/4

- a. Typical values unless otherwise noted.
- b. Center wavelength unless otherwise noted.
- c. At 20 mA unless otherwise noted.
- d. Specified for temperature of 25 °C.
- e. Nominal Wavelength
- f. Peak Wavelength

Part Number	Description	Price	Availability
LED255W	**255 nm LED with Window, 0.4 mW, TO-39**	**$460.08**	**Today**
LED260W	**260 nm LED with Window, 1 mW, Ø9 mm**	**$929.88**	**Today**

LED275W	275 nm LED with Window, 1.6 mW, Ø9 mm	$398.81	Today
LED280W	280 nm LED with Window, 2.3 mW, TO-39	$308.49	Today
LED285J	285 nm LED with Aspheric Glass Lens, 1.3 mW, TO-39	$269.28	Today
LED285W	285 nm LED with Window, 1.6 mW, Ø9 mm	$276.17	7-10 Days
LED290W	290 nm LED with Window, 1.6 mW, Ø9 mm	$261.00	Today
LED295W	295 nm LED with Window, 1.2 mW, TO-39	$230.55	7-10 Days
LED300W	300 nm LED with Window, 1.2 mW, Ø9 mm	$334.83	7-10 Days
LED310W	310 nm LED with Window, 1.5 mW, TO-39	$308.49	Today
LED325W2	325 nm LED with Window, 1.7 mW, TO-39	$308.49	Today
LED340W	340 nm LED with Window, 1.7 mW, TO-39	$308.49	Today
LED341W	340 nm LED with Window, 0.33 mW, TO-39	$208.47	Today
LED375L	Customer Inspired! 375 nm LED with a Glass Lens, 1 mW, TO-18	$14.68	Today
LED370E	375 nm Epoxy-Encased LED, 2.5 mW, T-1 3/4	$13.18	Today
LED385L	Customer Inspired! 385 nm LED with a Glass Lens, 5 mW, TO-18	$14.91	Today
LED395L	Customer Inspired! 395 nm LED with a Glass Lens, 6 mW, TO-18	$15.03	Today
LED405L	Customer Inspired! 405 nm LED with a Glass Lens, 6 mW, TO-18	$15.59	Today
LED405E	405 nm Epoxy-Encased LED, 10 mW, T-1 3/4	$20.27	Today

Hide Single-Color Visible LEDs (430 - 680 nm)

Single-Color Visible LEDs (430 - 680 nm)

Item #	Wavelength[a,b]	Optical Power[a]	Spectral FWHM[a]	Viewing Half Angle[a]	Max DC Forward Current[c]	Package
LED430L	430 nm	8 mW (at 20 mA)	20 nm	22°	50 mA	TO-18
LED450L	450 nm	7 mW (at 20 mA)	20 nm	20°	50 mA	TO-18
LED450LW	450 nm	90 mW (at 100 mA)	16 nm	50°	150 mA	TO-39
LED465E	465 nm[d]	20.0 mW (at 20 mA)	25 nm	8°	50 mA	T-1 3/4
LED470L	470 nm	170 mW (at 350 mA)	22 nm	7º	350 mA	TO-39
LED490L	490 nm	3 mW (at 20 mA)	20 nm	20°	50 mA	TO-18
LED505L	505 nm	4 mW (at 50 mA)	30 nm	20°	30 mA	TO-18
LED525E	525 nm[d]	2.6 mW (at 20 mA)	32 nm	7.5°	30 mA	T-1 3/4
LED525L	525 nm	4 mW (at 50 mA)	25 nm	20°	30 mA	TO-18
LED528EHP	525 nm[d]	7.0 mW (at 20 mA)	35 nm	9°	50 mA	T-1 3/4
LED545L	545 nm	2.4 mW (at 20 mA) 8.7 mW (Pulsed, at 100 mA)	39 nm	12°	50 mA	TO-18
LED560L	562 nm[c]	0.15 mW (at 20 mA)[c] 0.6 mW (Max, at 50 mA)[c]	11 nm[c]	6°[c]	50 mA	TO-18
LED570L	570 nm	0.3 mW (at 20 mA)	15 nm	20°	50 mA	TO-18
LED590L	590 nm	2 mW (at 50 mA)	15 nm	20°	30 mA	TO-18
LED591E	590 nm[d]	2 mW (at 20 mA)	20 nm	10°	50 mA	T-1 3/4
LED595LW	595 nm	45 mW (at 100 mA)	75 nm	50°	150 mA	TO-39
LED600L	600 nm	3 mW (at 50 mA)	12 nm	15°	75 mA	TO-18
LED610L	610 nm	8 mW (at 50 mA)	12 nm	25°	75 mA	TO-18
LED625E	625 nm[e]	9 mW (at 20 mA)[c]	20 nm[c,f]	10°[c,f]	50 mA	T-1 3/4
LED625L	625 nm	12 mW (at 50 mA)	14 nm	24°	75 mA	TO-18
LED630L	630 nm	16 mW (at 50 mA)	14 nm	22°	75 mA	TO-18
LED635L	635 nm[d]	170 mW (at 350 mA)	15 nm	7°	500 mA	TO-39
LED630E	639 nm[d]	7.2 mW (at 20 mA)	17 nm	7.5°	50 mA	T-1 3/4

LED645L	645 nm	16 mW (at 50 mA)	16 nm	20°	75 mA	TO-18
LED660L	660 nm	13 mW (at 50 mA)	14 nm	18°	75 mA	TO-18
LED670L	670 nm	12 mW (at 50 mA)	22 nm	22°	75 mA	TO-18
LED680L	680 nm	8 mW (at 50 mA)	16 nm	20°	75 mA	TO-18

- a. Typical values unless otherwise noted.
- b. Peak wavelength unless otherwise noted.
- c. Specified for temperature of 25 °C.
- d. Center Wavelength
- e. Nominal Wavelength
- f. When Driven at 20 mA

Part Number	Description	Price	Availability
LED430L	**Customer Inspired! 430 nm LED with a Glass Lens, 8 mW, TO-18**	**$13.39**	**Today**
LED450L	**Customer Inspired! 450 nm LED with a Glass Lens, 7 mW, TO-18**	**$13.28**	**Today**
LED450LW	**450 nm LED with a Flat Window, 90 mW, TO-39**	**$49.37**	**Today**
LED465E	**465 nm Epoxy-Encased LED, 20 mW, TO-1 3/4, Qty. of 5**	**$26.21**	**Today**
LED470L	**470 nm LED with a Glass Lens, 170 mW, TO-39**	**$66.38**	**Today**
LED490L	**Customer Inspired! 490 nm LED with a Glass Lens, 3 mW, TO-18**	**$13.18**	**Today**
LED505L	**505 nm LED with a Glass Lens, 4 mW, TO-18**	**$13.50**	**Today**
LED525E	**525 nm Epoxy-Encased LED, 2.6 mW, T-1 3/4, Qty. of 5**	**$22.59**	**Today**
LED525L	**525 nm LED with a Glass Lens, 4 mW, TO-18**	**$13.50**	**Today**
LED528EHP	**525 nm Epoxy-Encased LED, 7 mW, T-1 3/4, Qty. of 5**	**$26.21**	**Today**
LED545L	**545 nm LED with a Glass Lens, 2.4 mW, TO-18**	**$19.89**	**Today**
LED560L	**562 nm LED with a Glass Lens, 0.15 mW, TO-18**	**$17.85**	**Today**
LED570L	**570 nm LED with a Glass Lens, 0.3 mW, TO-18**	**$13.39**	**Today**
LED590L	**590 nm LED with a Glass Lens, 2 mW, TO-18**	**$13.39**	**Today**
LED591E	**590 nm Epoxy-Encased LED, 2 mW, T-1 3/4, Qty. of 5**	**$21.43**	**Today**
LED595LW	**595 nm LED with a Flat Window, 45 mW, TO-39**	**$30.09**	**Today**
LED600L	**600 nm LED with a Glass Lens, 3 mW, TO-18**	**$13.39**	**Today**
LED610L	**610 nm LED with a Glass Lens, 8 mW, TO-18**	**$13.39**	**Today**
LED625E	**NEW! 625 nm Epoxy-Encased LED, 9 mW, T-1 3/4**	**$6.74**	**Today**
LED625L	**625 nm LED with a Glass Lens, 12 mW, TO-18**	**$13.39**	**Today**
LED630L	**630 nm LED with a Glass Lens, 16 mW, TO-18**	**$13.39**	**Today**
LED635L	**635 nm LED with a Glass Lens, 170 mW, TO-39**	**$66.38**	**Today**
LED630E	**639 nm Epoxy-Encased LED, 7.2 mW, T-1 3/4, Qty. of 5**	**$15.84**	**Today**
LED645L	**645 nm LED with a Glass Lens, 16 mW, TO-18**	**$13.28**	**Lead Time**
LED660L	**660 nm LED with a Glass Lens, 13 mW, TO-18**	**$13.03**	**Today**
LED670L	**670 nm LED with a Glass Lens, 12 mW, TO-18**	**$13.03**	**Today**
LED680L	**680 nm LED with a Glass Lens, 8 mW, TO-18**	**$13.03**	**Today**

Hide Single-Color IR LEDs (750 - 1600 nm)

Single-Color IR LEDs (750 - 1600 nm)

Item #	Wavelength[a,b]	Optical Power[a]	Spectral FWHM[a]	Viewing Half Angle[a]	Max DC Forward Current[c]	Package
LED750L	750 nm	18 mW (at 50 mA)	23 nm	11°	75 mA	TO-18
LED760L	760 nm	24 mW (at 50 mA)	24 nm	12°	75 mA	TO-18
LED770L	770 nm	22 mW (at 50 mA)	28 nm	12°	75 mA	TO-18
LED780E	780 nm[d]	18 mW (at 50 mA)	30 nm	10°	100 mA	T-1 3/4

LED780L	780 nm	22 mW (at 50 mA)	25 nm	12°	75 mA	TO-18
LED800L	800 nm	20 mW (at 50 mA)	30 nm	12°	75 mA	TO-18
LED810L	810 nm	22 mW (at 50 mA)	30 nm	12°	75 mA	TO-18
LED830L	830 nm	22 mW (at 50 mA)	32 nm	12°	75 mA	TO-18
LED840L	840 nm	22 mW (at 50 mA)	35 nm	12°	75 mA	TO-18
LED850LN	850 nm	100 mW (at 500 mA)	55 nm	3.5°	500 mA	TO-39
LED850LW	850 nm	140 mW (at 500 mA)	55 nm	55°	500 mA	TO-39
LED851L	850 nm[d]	13 mW (at 20 mA)	40 nm	10°	100 mA	TO-18
LED870E	870 nm[d]	22 mW	40 nm	10°	100 mA	T-1 3/4
LED870L	870 nm	24 mW (at 50 mA)	42 nm	13°	75 mA	TO-18
LED890L	890 nm	12 mW (at 50 mA)	44 nm	14°	75 mA	TO-18
LED910L	910 nm	10 mW (at 50 mA)	44 nm	12°	75 mA	TO-18
LED910E	910 nm[d]	12 mW (at 50 mA)	35 nm	7°	100 mA	Ø5.5 mm
LED930L	930 nm	15 mW (at 50 mA)	60 nm	14°	75 mA	TO-18
LED940E	940 nm[d]	18 mW	50 nm	10°	100 mA	T-1 3/4
LED970L	970 nm	5 mW (at 50 mA)	46 nm	14°	75 mA	TO-18
LED1050E	1050 nm[d]	2.5 mW	55 nm	15°	100 mA	T-1 3/4
LED1050L	1050 nm	4 mW (at 50 mA)	50 nm	15°	100 mA	TO-18
LED1050L2	1050 nm[c]	8 mW (at 50 mA)[c]	42 nm[c]	9°[c]	100 mA[c]	TO-46
LED1070L	1070 nm	4 mW (at 50 mA)	55 nm	15°	100 mA	TO-18
LED1070E	1070 nm[d]	7.5 mW (at 50 mA)	80 nm	15°	100 mA	T-1 3/4
LED1085L	1085 nm	5 mW (at 50 mA)	50 nm	15°	100 mA	TO-18
LED1200E	1200 nm[d]	2.5 mW (at 20 mA)	100 nm	15°	100 mA	T-1 3/4
LED1200L	1200 nm	5 mW (at 50 mA)	70 nm	15°	100 mA	TO-18
LED1300E	1300 nm[d]	2 mW (at 20 mA)	100 nm	15°	100 mA	T-1 3/4
LED1300L	1300 nm	3.5 mW (at 50 mA)	85 nm	20°	100 mA	TO-18
LED1450E	1450 nm[d]	2 mW (at 20 mA)	100 nm	15°	100 mA	T-1 3/4
LED1450L	1450 nm	5 mW (at 50 mA)	105 nm	14°	100 mA	TO-18
LED1550E	1550 nm[d]	2 mW (at 20 mA)	100 nm	15°	100 mA	T-1 3/4
LED1550L	1550 nm	4 mW (at 50 mA)	120 nm	15°	100 mA	TO-18
LED1600L	1600 nm	2 mW (at 50 mA)	130 nm	15°	100 mA	TO-18

- a. Typical values unless otherwise noted.
- b. Peak wavelength unless otherwise noted.
- c. Specified for temperature of 25 °C.
- d. Center Wavelength

Part Number	Description	Price	Availability
LED750L	**750 nm LED with a Glass Lens, 18 mW, TO-18**	**$10.40**	**Today**
LED760L	**760 nm LED with a Glass Lens, 24 mW, TO-18**	**$10.40**	**Today**
LED770L	**770 nm LED with a Glass Lens, 22 mW, TO-18**	**$10.40**	**Today**
LED780E	**780 nm Epoxy-Encased LED, 18 mW, T-1 3/4, Qty. of 5**	**$31.15**	**Today**
LED780L	**780 nm LED with a Glass Lens, 22 mW, TO-18**	**$10.40**	**Today**
LED800L	**800 nm LED with a Glass Lens, 20 mW, TO-18**	**$10.40**	**Today**
LED810L	**810 nm LED with a Glass Lens, 22 mW, TO-18**	**$10.40**	**Today**
LED830L	**830 nm LED with a Glass Lens, 22 mW, TO-18**	**$10.40**	**Today**
LED840L	**840 nm LED with a Glass Lens, 22 mW, TO-18**	**$10.40**	**Today**
LED850LN	**850 nm LED with a Glass Lens, 100 mW, TO-39**	**$27.79**	**Today**

LED850LW	**850 nm LED with a Flat Window, 140 mW, TO-39**	**$25.48**	**Today**
LED851L	**850 nm LED with a Glass Lens, 13 mW, TO-18**	**$16.20**	**Today**
LED870E	**870 nm Epoxy-Encased LED, 22 mW, T-1 3/4, Qty. of 5**	**$20.27**	**Today**
LED870L	**870 nm LED with a Glass Lens, 24 mW, TO-18**	**$10.33**	**Today**
LED890L	**890 nm LED with a Glass Lens, 12 mW, TO-18**	**$9.21**	**Today**
LED910L	**910 nm LED with a Glass Lens, 10 mW, TO-18**	**$9.21**	**7-10 Days**
LED910E	**910 nm Epoxy-Encased LED, 12 mW, Ø5.5 mm**	**$9.85**	**Today**
LED930L	**930 nm LED with a Glass Lens, 15 mW, TO-18**	**$8.12**	**Today**
LED940E	**940 nm Epoxy-Encased LED, 18 mW, T-1 3/4, Qty. of 5**	**$13.39**	**Today**
LED970L	**970 nm LED with a Glass Lens, 5 mW, TO-18**	**$8.12**	**Today**
LED1050E	**1050 nm Epoxy-Encased LED, 2.5 mW, T-1 3/4**	**$20.73**	**Today**
LED1050L	**1050 nm LED with a Glass Lens, 4 mW, TO-18**	**$27.95**	**Today**
LED1050L2	**1050 nm LED with a Glass Lens, 8 mW, TO-46**	**$31.59**	**Today**
LED1070L	**1070 nm LED with a Glass Lens, 4 mW, TO-18**	**$27.84**	**Today**
LED1070E	**1070 nm Epoxy-Encased LED, 7.5 mW, T-1 3/4**	**$24.45**	**Today**
LED1085L	**1085 nm LED with a Glass Lens, 5 mW, TO-18**	**$27.95**	**Today**
LED1200E	**1200 nm Epoxy-Encased LED, 2.5 mW, T-1 3/4**	**$22.12**	**Today**
LED1200L	**1200 nm LED with a Glass Lens, 5 mW, TO-18**	**$28.77**	**Today**
LED1300E	**1300 nm Epoxy-Encased LED, 2.0 mW, T-1 3/4**	**$21.19**	**Today**
LED1300L	**1300 nm LED with a Glass Lens, 3.5 mW, TO-18**	**$28.89**	**Today**
LED1450E	**1450 nm Epoxy-Encased LED, 2.0 mW, T-1 3/4**	**$20.84**	**Today**
LED1450L	**1450 nm LED with a Glass Lens, 5 mW, TO-18**	**$28.17**	**Today**
LED1550E	**1550 nm Epoxy-Encased LED, 2.0 mW, T-1 3/4**	**$21.43**	**Today**
LED1550L	**1550 nm LED with a Glass Lens, 4 mW, TO-18**	**$27.13**	**Today**
LED1600L	**1600 nm LED with a Glass Lens, 2 mW, TO-18**	**$27.26**	**Today**

Hide Single-Color IR LEDs (1650 - 4500 nm)

Single-Color IR LEDs (1650 - 4500 nm)

Item #	Center Wavelength[a,b]	Optical Power[a,b]	Spectral FWHM[a,b]	Viewing Half Angle[a]	Max Quasi-CW (qCW) Forward Current[a]	Package
LED1600P	1650 nm	1.2 mW qCW at 200 mA	150 nm	-[c]	200 mA	TO-18R
LED1700P	1750 nm	1.2 mW qCW at 200 mA (30 mW Pulsed at 1 A)	150 nm	-[c]	200 mA	TO-18R
LED1800P	1850 nm	0.9 mW qCW at 100 mW (20.0 mW Pulsed at 2 A)	150 nm	-[c]	200 mA	TO-18R
LED1900P	1950 nm	1.0 mW qCW at 200 mA (25.0 mW Pulsed at 1 A)	150 nm	-[c]	200 mA	TO-18R
LED2050P	2050 nm	1.1 mW qCW at 200 mA (28 mW Pulsed at 2 A)	200 nm	-[c]	200 mA	TO-18R
LED2350P	2350 nm	0.8 mW qCW at 200 mA (16.0 mW Pulsed at 1 A)	220 nm	-[c]	200 mA	TO-18R
LED2700W	2700 - 2790 nm[d,e,f]	150 µW qCW at 200 mA[e] (1000 µW Pulsed at 1 A)[g]	300 nm (Min)[e,f] 500 nm (Max)[e,f]	15°	200 mA[e,h]	TO-18
LED2800W	2830 - 2900 nm[d,e,f]	300 µW qCW at 200 mA[e] (2000 µW Pulsed at 1 A)[g]	300 nm (Min)[e,f] 500 nm (Max)[e,f]	15°	200 mA[e,h]	TO-18
LED3400W	3300 - 3440 nm[d,e,f]	300 µW qCW at 200 mA[e] (2000 µW Pulsed at 1 A)[g]	300 nm (Min)[e,f] 500 nm (Max)[e,f]	15.5°	200 mA[e,h]	TO-18
LED4300P	4200 nm	30 µW qCW at 200 mA (200 µW Pulsed at 1 A)	400 - 1200 nm	-[c]	250 mA	TO-18R

- a. Specified for temperature of 25 °C.
- b. Typical values unless otherwise noted.
- c. This data is unavailable. For LEDs with a parabolic reflector, expect the viewing half angle to be only a few degrees.
- d. Peak Wavelength
- e. Repetition Rate: 0.5 kHz, Pulse Duration: 1 ms, and Duty Cycle: 50%
- f. Measured at 150 mA
- g. Repetition Rate: 0.5 kHz, Pulse Duration: 20 µs, and Duty Cycle: 1%
- h. For Long-Time Operation

Part Number	Description	Price	Availability
LED1600P	1650 nm LED with Parabolic Reflector, 1.2 mW Quasi-CW, TO-18R	$96.38	Today
LED1700P	1750 nm LED with Parabolic Reflector, 1.2 mW Quasi-CW, 30 mW Pulsed, TO-18R	$96.38	Today
LED1800P	1850 nm LED with Parabolic Reflector, 0.9 mW Quasi-CW, 20.0 mW Pulsed, TO-18R	$140.91	Today
LED1900P	1950 nm LED with Parabolic Reflector, 1 mW Quasi-CW, 25.0 mW Pulsed, TO-18R	$140.91	Today
LED2050P	2050 nm LED with Parabolic Reflector, 1.1 mW Quasi-CW, 28 mW Pulsed, TO-18R	$140.91	Today
LED2350P	2350 nm LED with Parabolic Reflector, 0.8 mW Quasi-CW, 16.0 mW Pulsed, TO-18R	$140.91	Today
LED2700W	2700 nm LED with Glass Cover, 0.15 mW Quasi-CW, 1.0 mW Pulsed, TO-18	$120.65	Today
LED2800W	2800 nm LED with Glass Cover, 0.3 mW Quasi-CW, 2.0 mW Pulsed, TO-18	$120.65	Today
LED3400W	3300 nm LED with Glass Cover, 0.3 mW Quasi-CW, 2.0 mW Pulsed, TO-18	$55.15	Lead Time
LED4300P	4200 nm LED with Parabolic Reflector, 30 µW Quasi-CW, 200 µW Pulsed, TO-18R	$80.94	Today

Hide Multi-Color LEDs

Multi-Color LEDs

Item #	Center Wavelength[a]	Optical Power[a]	Spectral FWHM[a]	Viewing Half Angle[a]	Max DC Forward Current[b]	Package
LEDGR	625 nm and 572 nm	0.19 mW and 0.09 mW (at 20 mA)	40 nm and 30 nm	15°	30 mA	T-1 3/4[c]
LEDRY	617 nm and 588 nm	0.19 mW and 0.09 mW (at 20 mA)	45 nm and 35 nm	30°	30 mA	T-1 3/4[c]
LEDRGBE (R, G, and B)	627.5 nm, 525 nm, and 467.5 nm	5.8 mW, 3.1 mW, and 6.2 mW	20 nm, 36 nm, and 15 nm	25°	50 mA	T-1 3/4[c]

- a. Typical values unless otherwise noted.
- b. Specified for temperature of 25 °C.
- c. This LED is not compatible with the 8060-2 LED socket due to the extra pins required for multi-color operation.

Part Number	Description	Price	Availability
LEDGR	625/572 nm Dual-Color LED, Qty. of 5	$15.60	Today
LEDRY	617/588 nm Dual-Color LED, Qty. of 5	$14.68	Today
LEDRGBE	627.5/525/467.5 nm Tri-Color LED, Qty. of 5	$34.66	Today

Hide White Light LEDs

White Light LEDs

Item #	Wavelength Range[a]	Optical Power[a,b]	Spectral FWHM[a]	Viewing Half Angle[a]	Max DC Forward Current[c]	Package
LEDWE-15[d]	430 - 660 nm	13.0 mW	N/A	7.5°	30 mA	T-1 3/4
LEDW7E	430 - 660 nm	15.0 mW	N/A	7.5°	30 mA	T-1 3/4
LEDW25E	430 - 660 nm	15.0 mW	N/A	25°	30 mA	T-1 3/4

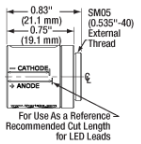
- a. Typical values, unless noted otherwise.
- b. At 20 mA unless otherwise noted.
- c. Specified at a temperature of 25 °C.
- d. Does not fit the LEDMT1E.

Part Number	Description	Price	Availability
LEDWE-15	Epoxy-Encased White Light LED, 13.0 mW, 7.5° Half Viewing Angle, Qty. of 5	$10.71	Today
LEDW7E	Epoxy-Encased White Light LED, 15.0 mW, 7.5° Half Viewing Angle, Qty. of 5	$8.59	Today
LEDW25E	Epoxy-Encased White Light LED, 15.0 mW, 25° Half Viewing Angle, Qty. of 5	$8.91	Today

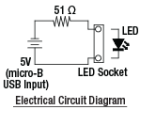
Hide USB-Powered LED Mounts

USB-Powered LED Mounts

- USB-Powered Mount for LEDs in T-1 3/4 Packages
- Options with Built-In 51 Ω or 62 Ω Current-Limiting Resistor for Different Electrical Requirements
- External SM05 (0.535"-40) Mounting Thread
- Includes Micro-B USB to USB Type-A Cable for Power LED Module



Click for Details
LEDMT1E
Mechanical
Schematic



Click to Enlarge
LEDMT1E Electrical
Schematic

These USB-Powered LED Mounts provide both power and a mounting socket for our unmounted LEDs in T-1 3/4 packages within a single compact housing. Because of the varied electrical requirements, we offer the LED mounts with either a 51 Ω or 62 Ω current-limiting resistor. The module is powered via the micro-B USB port on the back of the housing which can be connected to a USB power source or PC via the included USB to micro-B USB cable. The housing exterior features external SM05 (0.535"-40) threading which can be used to integrate these mounts with a cage system or SM05-threaded component.

When mounting an LED, use the engraving on the housing to determine the appropriate length to cut the leads (see drawing to the right). Insert the LED with the anode lead going into the socket indicated by a (+) sign and the cathode into the socket indicated by a (-) sign. Use light force to mount the LED as excessive force may bend the electrode leads.

These powered mounts offer a fixed resistance and input voltage; choosing the appropriate mount for your LED will minimize damage to the LED. In general, a mount with a lower resistance value will increase the forward current available to the LED and proportionally increase the optical output power. However, the forward current must not exceed the maximum current of LED as this can cause permanent damage to the LED. The minimum mount resistance (R) recommended to use a desired LED is given by the following equation:

$$R = \frac{V_{I,Source} - V_{F,Typ}}{I_{F,Max}}$$

where the input voltage of the mount ($V_{I,Source}$) is 5 V and the typical forward voltage ($V_{F,Typ}$) and maximum forward current ($I_{F,Max}$) are properties of each LED. Please consult the specifications of your LED for these values.

Item #	LEDMT1E	LEDMT1F
Input Voltage (V_I)	5 V	
Resistance	51 Ω	62 Ω
Compatible LED Package	T-1 3/4[a]	
Mounting Thread	External SM05 (0.535"-40)	
Outer Dimensions	Ø0.70" x 0.83"	
Compatible LEDs[b]	LED370E LED405E LED465E LED528EHP LED780E LED870E LED940E LED1050E LED1070E LED1200E LED1300E LED1450E LED1550E	LED525E LED591E LED625E LED630E LEDW25E LEDW7E

- a. LEDs with three pins and the LEDWE-15 are not compatible with the powered LED mounts.
- b. LEDs compatible with a lower resistance mount will typically work with a higher resistance mount but with decreased output power.

Part Number	Description	Price	Availability
LEDMT1E	Customer Inspired! USB-Powered LED Mount, 51 Ω Resistor	$51.38	Today
LEDMT1F	Customer Inspired! USB-Powered LED Mount, 62 Ω Resistor	$51.38	Today

Hide LED Mounts

LED Mounts

The LEDMF LED Mount is designed to hold any of Thorlabs' TO-18R packages directly or our T-1 3/4 or TO-18 packages using one of the included adapter rings (Ø4.7 mm adapter for TO-18 or Ø5 mm adapter for T-1 3/4). The LED is secured in the mount with a top-located cap screw with a 5/64" (2 mm) hex. The L-shaped mount has a counterbored through hole suitable for an 8-32 (M4) cap screw so that the LEDMF can be attached to a Ø1/2" Post.

The S05LEDM and S1LEDM LED Mounts are SM05 (0.535"-40) and SM1 (1.035"-40) threaded, respectively. They are designed to hold any of Thorlabs' TO-18, TO-39, TO-46, or T-1 3/4 packages using the included adapter rings. The external threading on these mounts allows them to be used in a wide variety of SM05- or SM1-compatible optomechanics.

To aid in threading the retaining ring into the mount or in threading the mount into a mating component, we recommend using our selection of spanner wrenches. The SPW801 Adjustable Spanner Wrench can be used to thread LED retaining rings into the mount and the mount into a mating component. Alternatively, the table to the right also lists the compatible fixed spanner wrench for each mount.

LED Mount Compatibility				
Item #	LED Package	External Mounting Threads	Compatible Spanner Wrenches	
			Mount	LED Retaining Ring
LEDMF	TO-18, TO-18R, and T-1 3/4[a]	Smooth Bore	N/A	N/A
S05LEDM	TO-18, TO-39, TO-46, and T-1 3/4[a]	SM05 (0.535"-40)	SPW603 SPW801	SPW301 SPW801
S1LEDM		SM1 (1.035"-40)	SPW909 SPW801	

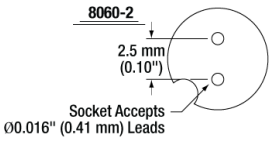
- a. The LEDRGBE, LEDGR, and LEDRY are not compatible with the LEDMF, S05LEDM, and S1LEDM, as the lead spacing prevents them from being mounted.

Part Number	Description	Price	Availability
LEDMF	Ø1/2" Post-Mountable LED Mount for TO-18, TO-18R, and T-1 3/4 LEDs	$31.15	Today
S05LEDM	Customer Inspired! SM05-Threaded Mount for TO-18, TO-39, TO-46, or T-1 3/4 LEDs	$37.28	Today
S1LEDM	SM1-Threaded Mount for TO-18, TO-39, TO-46, or T-1 3/4 LEDs	$37.80	Today

Hide LED Socket

LED Socket

Thorlabs offers a light-emitting diode (LED) socket that is compatible with LEDs that have two leads. This socket fits LED leads that are Ø0.016" (Ø0.41 mm) and ≤0.22" (5.6 mm) long. The socket has gold-plated beryllium copper contacts and meets RoHS compliance. Color varies by lot and may be white, off white, black, or tan.



Specifications	
Conductor	Beryllium Copper (BeCu)
Insulator	PTFE
Compatible Lead Diameters	0.016" (0.41 mm)
Compatible Lead Lengths	≤0.22" (5.6 mm)
Outer Diameter	5.8 mm (0.23")
Substrate Thickness	6.9 mm (0.27")

Part Number	Description	Price	Availability
8060-2	Light-Emitting Diode Socket for LEDs, 2 Pin	$12.60	Today