

# OSLON Black Flat Broadband PowerStar

ILH-IB01-BBEM-SC201-WIR200.

## Product Overview

At the heart of each PowerStar is the SFH4735 LED from OSRAM Opto Semiconductors. The SFH4735 LED emits broadband infrared light in wavelengths ranging from 650 to 1,050 nanometres (nm). It is ideal for near-infrared spectroscopy, which can be used to assess food, medicine and even measure body fat. The SFH4735 created a whole new field of compact, robust and low-cost sensing technology that did not exist before, making it possible to integrate spectrometers directly into mobile devices like smartphones and tablets. PowerStars are compact, powerful LED light sources built on aluminium substrates for optimal thermal management. Available with 200mm wires as standard.



## Applications

- Infrared Spectroscopy
- Medical
- Wearables

## Technical Features

- Up to 50,000 hours lifetime to 70% of original brightness
- PowerStars contain 1 OSLON® Black Flat LEDs
- Secondary Lens can be fitted – check options in suitable Lens and Reflector section
- Suitable Heatsinks available – check options in Heatsink section
- Matching Power Supply available - check options in Power Supply section
- Mounting holes using M3 screws allow easy installation
- Available with 200mm connecting wires
- Size: (LxWxH) 20x20x2.3mm
- PowerStars can be linked together to produce longer chains
- Current range: 0-500mA

\*This datasheet should be read in conjunction with the relevant OSRAM Opto Semiconductors data on the LED used

## Important Information and Precautions

- The PowerStar, when powered up, are very bright. Thus it is advised that you do not look directly at them. Turn the PowerStar away from you and do not shine into the eyes of others.
- PowerStars will overheat in operation if not attached to a suitable Heatsink. Overheating can cause failure or irreparable damage.
- Do not operate PowerStars with a Power Supply with unlimited current. Connection to constant voltage Power Supplies that are not current limited may cause the PowerStar to consume current above the specified maximum and cause failure or irreparable damage.
- PowerStars, when operated, can reach high temperatures thus there is risk of injury if they are touched.
- DO NOT HOT PLUG ON LED SIDE OF POWER SUPPLY
- DO NOT TOUCH or PUSH on the LED as this might cause irreparable damage.

## Product Options

ILS PART NUMBER	Wavelength *	Typical Wattage at 350mA §	Forward Voltage	Flux † at 350mA	Radiance Angle	Relevant OSRAM LED Data
ILH-IB01-BBEM-SC201-WIR200.	650-1050nm	1.05W	2.95-3.5V	16mW	120° (±60°)	SFH4735

\* Due to the special conditions of the manufacturing processes of LEDs, the typical data of technical parameters can only reflect statistical figures and do not necessarily correspond to the actual parameters of each single product which could differ from the typical data.

§ Tolerance +/- 10%

† Measured with 20mS 350mA pulse at 25 °c

## Minimum and Maximum Ratings

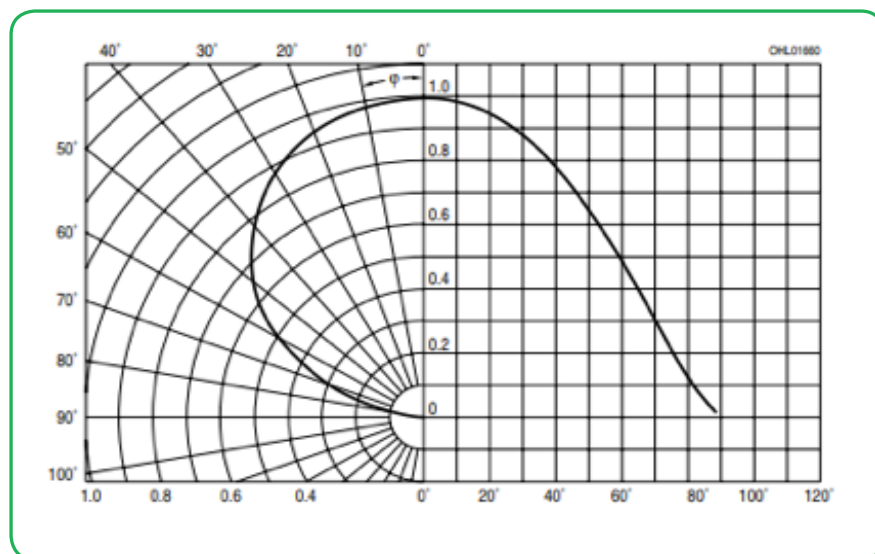
ILS PART NUMBER	Operating Temperature at Tc-Point [ °C ]*	Storage Temperature [ °C ]*	Forward Current per chip [ mA ]*	Surge Current	Reverse Voltage [ Vdc ]*
ILH-IB01-BBEM-SC201-WIR200.	-40 °C - 85 °C	-40 °C - 85 °C	500mA	1A	45V

\* Exceeding maximum ratings for operating and storage temperature will reduce expected life time or destroy the LED module.

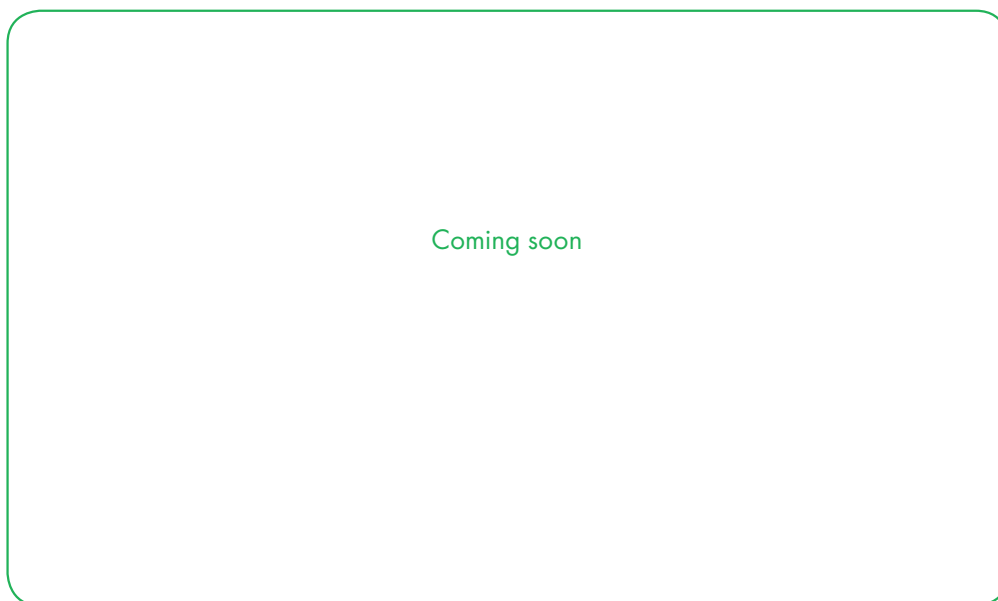
Exceeding maximum ratings for operating voltage will cause hazardous overload and will likely destroy the LED module.

The temperature of the LED module must be measured at the Tc-Point according to EN60598-1 in a thermally constant status with a temperature sensor or a temperature sensitive label.

## Radiation of single LED



## Technical Drawing with cables (mm)



**3D drawing files are available on request from ILS. Please call or email**

## Lens and Reflector Options

LEDiL precision-engineered Lenses and Reflectors allow for rapid deployment of all types of light fixtures, including street lights, wall-wash, high-bay, sconces, emergency beacons, parking garage/low-bay, MR and AR down lights, and dock lights. Precision-engineered for maximum efficiency and durability, LEDiL Lenses and Reflectors are released alongside the latest product releases from our LED suppliers. You select the best LED for the application; choose LEDiL and you're selecting the best optical solution as well.



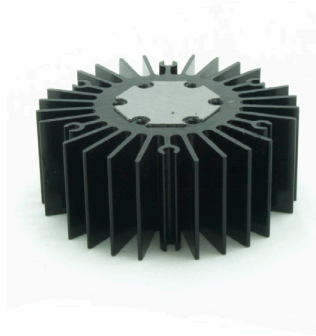
Ordering Code	Beam	Diameter	Height	Family	FWHM	Material	Colour	Fastening
CA11640_LR2-O-90	Oval	22mm	14.5mm	LEILA	10x40	PMMA	White	Tape + Pin
CA12264_LR2-M	Medium	22mm	14.5mm	LEILA	25	PMMA	White	Tape + Pin
CA14509_G2-LXP2-M-P	Medium	22mm	14.5mm	LEILA	20	PMMA	White	Tape + Pin
FA11203_TINA-O	Oval	16.1	9.5mm	TINA	35x15	PC	Black	Tape + Pin
FA11204_TINA-O	Oval	16.1	9.5mm	TINA	35x15	PC	Black	Tape + Pin
CA12374_TINA2-RS	Real Spot	16.1	9.5mm	TINA2	14	PC	Black	Tape + Pin
CA12377_TINA2-M	Medium	16.1	9.5mm	TINA2	30	PC	Black	Tape + Pin
CA12379_TINA2-O	Oval	16.1	9.5mm	TINA2	35+14	PC	Black	Tape + Pin

## PowerStar Heatsink Options

ILS has recently introduced a series of Aluminium Alloy Heatsinks to be used with our standard range of PowerStars and PowerClusters. These Heatsinks are supplied with fixing screws for the light engine and for fixing to a base plate. They also come with Thermal Interface Material (TIM) attached to the top surface. More versions will be introduced over the coming months and we are also happy to manufacture custom Heatsinks to your request.

	Operates under the recommended ILS junction temperature
	Operates under the recommended LED maximum junction temperature
	Not suitable for use
N/A	Heatsink not designed for use with this product

ILS Product		No Heatsink, in free air	ILA-HSINK-STAR-50X20MM.	ILA-HSINK-STAR-50X40MM.	ILA-HSINK-STAR-50X60MM.	ILA-HSINK-STAR-50X80MM.	ILA-HSINK-70X70X55MM.	ILA-HSINK-78X46X25MM.
1+ PowerStars	350mA							
	700mA							
	1000mA							
4+ PowerStars	350mA							
	700mA							
	1000mA							
9+ PowerStars	350mA							
	700mA							
	1000mA							
16+ PowerClusters	350mA							
	700mA							
	1000mA							



## PowerStar Power Supply Options

ILS has a comprehensive range of standard Power Supplies. The table below shows the total number of ILS products each Power Supply can drive. Additional Power Supplies are being introduced so please call us or check our website for the latest offering.

ILS Driver Part No.	Rating	Current	Output Voltage	
ILA-1CH-LED-TESTER-USB-01	1.75W	50-350mA	5V	
ILA-1CH-LED-TESTER-PREC-01	16W	10-700mA	2-20V	
IZC035-004F-4065C-SAL	4W	350mA	3-12	
IZC035-008F-5065C-SA	8W	350mA	3-36	
IZC035-017F-0067A-SA	17W	350mA	6-48	
IZC035-018T-9500A-SX	18W	350mA	15-52	
IZC050-018T-9500A-SX	18W	500mA	6-26	
IZC035-035F-9067C-QA	35W	350mA	40-80	
IZC045-040A-9266C-SA	45W	450mA	30-89	
IZC050-060F-9067C-QA	60W	500mA	40-110	

## Thermal Interface Material Options

ILS have produced a range of high-performance, cost effective Thermal Interface Materials to match perfectly their standard products. Our product fills the air pockets between the two surfaces, forming a continuous layer to conduct heat away from the LED to the Heatsink. As the Eco1 generates little heat, TIM is therefore not needed. Our double sided thermal tape would be suitable for fixing the Eco1 to a fixture, Heatsink and flat substrate.

Product	Non Adhesive	Single Sided Adhesive	Double Sided Adhesive
PowerStar	ILA-TIM-STAR-0A	ILA-TIM-STAR-1A	ILA-TIM-STAR-2A.

Other sizes are available, including customised parts

## Assembly Information

- The mounting of the PowerStar has to be on a metal Heatsink.
- In order to optimise the thermal management, the metal surface needs to be clean (dirt and oil free) and planar for the best contact with the LED module. A thermal grease or heat transfer material is highly recommended.

## Safety Information

- The LED module itself and all its components must not be mechanically stressed.
- Assembly must not damage or destroy conducting paths on the circuit board.
- The mounting of the module is carried out by attaching it at the mounting holes. Metal mounting screws must be insulated with synthetic washers to prevent circuit board damage and possible short circuiting.
- To avoid mechanical damage to the connecting cables, the boards should be attached securely to the intended substrate. Heavy vibration should be avoided.
- Observe correct polarity!
- Depending on the product, incorrect polarity will lead to emission of red or no light. The module can be destroyed!
- Pay attention to standard ESD precautions when installing the PowerStar.
- PowerStars, as manufactured, have no conformal coating and therefore offer no inherent protection against corrosion.
- Damage by corrosion will not be accepted as a materials defect claim. It is the user's responsibility to provide suitable protection against corrosive agents such as moisture and condensation and other harmful elements.
- For outdoor usage, a housing is definitely required to protect the board against environmental influences. The design of the housing must correspond to the IP standards in the application. It is also the responsibility of the user to ensure any housings or modifications keep the Tc junction temperature to within stated ranges.
- To also ease the luminaire/installation approval, electronic control gear for LED or LED modules should carry the CE mark and be ENEC certified. In Europe the declarations of conformity must include the following standards: CE: EC 61374-2-13, EN 55015, IEC 61547 and IEC 61000-3-2 - ENEC: 61374-2-13 and IEC/EN 62384.
- The evaluation of eye safety occurs according to the standard IEC 62471:2006 ("photobiological safety of lamps and lamp systems"). Within the risk grouping system of this CIE standard, the LED specified in this data sheet falls into the class "moderate risk" (exposure time 0.25s). Under real circumstances (for exposure time, eye pupils, observation distance), it is assumed that no endangerment to the eye exists from these devices. As a matter of principle, however, it should be mentioned that intense light sources have a high secondary exposure potential due to their blinding effect. As is also true when viewing other bright light sources (e.g. headlights), temporary reduction in visual acuity and afterimages can occur, leading to irritation, annoyance, visual impairment and even accidents, depending on the situation.

## For further information please contact ILS

The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.