

OSLON[®] Square Flat 1 PowerStar

ILH-OF01-xxxx-SC221-WIR200.

Product Overview

At the heart of each PowerStar is an OSLON[®] Square Flat LED. OSLON[®] Squares can be driven up to 1800mA while OSRAM's latest power chip technology remains efficient even at the highest drive currents. A low thermal resistance of 2.8K/W ensures cool running and a highly efficient product. PowerStars are compact, powerful LED light sources built on aluminium substrates for optimal thermal management. Available with 200mm wires as standard.

Applications

- General lighting
- Decorative lighting
- Task lighting
- Spot lighting
- Downlighters
- Retail and entertainment lighting
- Architecture
- Transportation
- Lamp Retrofits



Technical Features

- OSLON[®] Square Flat 1 PowerStars contain OSLON[®] Square Flat LED with an integral 120 degree silicone resin lens
- Up to 100,000 Hour lifetime to 70% of original brightness
- Mounting holes using M3 screws allows easy installation
- Available with 200mm connecting wires
- Secondary Lens can be fitted – check options in Lens and Reflector section
- Suitable Heatsinks available – check options in Heatsink section
- Matching Power Supply available – check options in Power Supply section
- Suitable Thermal Interface Material available – check options in Thermal Interface Material section
- Size (L x W x H): 20 x 20 x 2.3 mm
- PowerStars can be linked together to produce longer chains
- Current range 200-1800 mA

*This datasheet should be read in conjunction with the relevant OSRAM data for the LED used

Important Information and Precautions

- PowerStars, when powered up, are very bright. Thus it is advised that you do not look directly at them. Turn the PowerStar product away from you and do not shine into the eyes of others.
- PowerStar products will overheat in operation if not attached to a suitable Heatsink. Overheating can cause failure or irreparable damage.
- Do not operate PowerStar products with a power supply with unlimited current. Connection to constant voltage power supplies that are not current limited may cause the PowerStar product to consume current above the specified maximum and cause failure or irreparable damage.
- PowerStar products, when operated, can reach high temperatures thus there is a 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	Colour	Colour Temp * (Degrees Kelvin)	CRI	Typical Wattage at 700mA §	Forward Voltage	Luminous Flux † at 700mA	Radiance Angle	Relevant OSRAM LED Data
ILH-OF01-WM90-SC221-WIR200.	Warm White	3000K	90CRI	2W	2.7 to 3.2V	159lm	120° (+/- 60°)	KWCSLPM2.CC
ILH-OF01-QZ90-SC221-WIR200.	Quartz White	3500K	90CRI	2W	2.7 to 3.2V	159lm	120° (+/- 60°)	KWCSLPM2.CC
ILH-OF01-NW90-SC221-WIR200.	Neutral White	4000K	90CRI	2W	2.7 to 3.2V	159lm	120° (+/- 60°)	KWCSLPM2.CC
ILH-OF01-ST70-SC221-WIR200.	Street White	5700K	70CRI	2W	2.7 to 3.2V	159lm	120° (+/- 60°)	KWCSLPM2.PC
ILH-OF01-UL70-SC221-WIR200.	Ultra White	6500K	70CRI	2W	2.7 to 3.2V	159lm	120° (+/- 60°)	KWCSLPM2.PC

* 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%

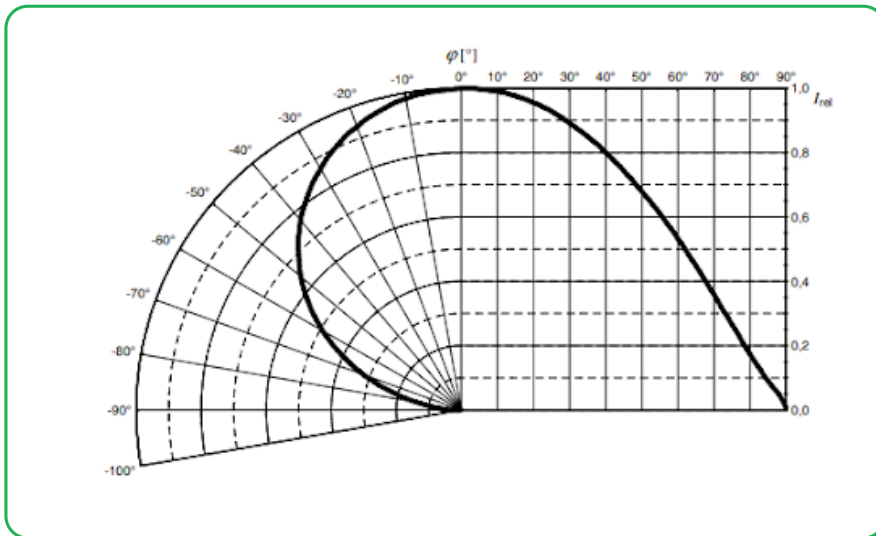
† Measured with 700mA pulse at 85 °C

Minimum and Maximum Ratings

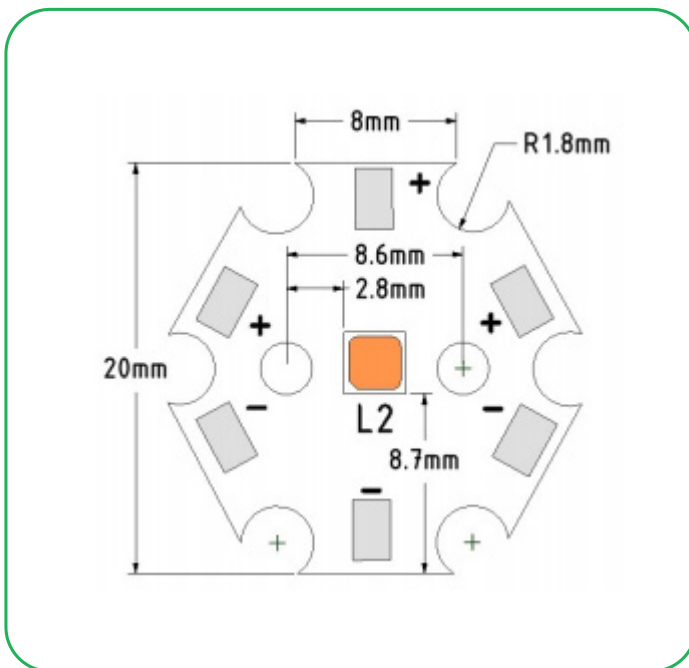
ILS Part Number	Operating Temperature at Tc-Point [°C]*	Storage Temperature [°C]*	Forward Current per chip	Reverse Voltage [Vdc]*
ILH-OF01-xxxx-SC221-WIR200.	-40 ... 125 (°C)	-40 ... 125 (°C)	200mA ... 1800mA	Refer to LED Datasheet

* 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 is likely to 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 (mm)



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

OSLON® Square Flat 1 PowerStar 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 downlights, 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	Dimensions	Height	Family	FWHM	Material	Colour	Fastening
CA14505_G2-LXP2-RS2-P	Spot	22mm	14.7mm	LEILA	+/-4.25	PMMA+PC	Black	Pin and Tape
CA14507_G2-LXP2-D	Diffused Spot	22mm	14.7mm	LEILA	+/-7	PMMA+PC	Black	Pin and Tape
CA12374_TINA2-RS	Spot	16mm	9.5mm	TINA2	+/-7	PMMA+PC	Black	Pin and Tape
CA12375_TINA2-D	Diffused Spot	16mm	9.5mm	TINA2	+/-8	PMMA+PC	Black	Pin and Tape
CA12376_TINA2-SS	Smooth Spot	16mm	9.5mm	TINA2	+/-10	PMMA+PC	Black	Pin and Tape
CA12377_TINA2-M	Medium	16mm	9.5mm	TINA2	+/-15	PMMA+PC	Black	Pin and Tape
CA12379_TINA2-O	Oval	16mm	9.5mm	TINA2	+/-17.5+7.5	PMMA+PC	Black	Pin and Tape

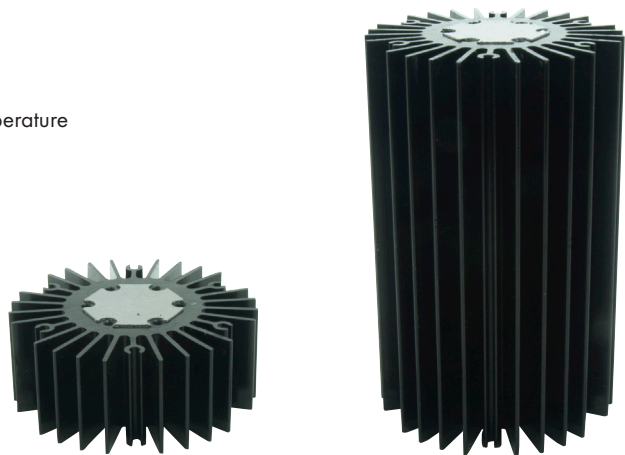
OSLON® Square Flat 1 PowerStar Heatsink Options

ILS has a series of Aluminium Alloy Heatsinks to be used with our standard range of PowerStars, PowerClusters and PowerLinear Engines. Some Heatsinks are supplied as kits with fixing screws and Thermal Interface Material (TIM). ILS is continually expanding its Heatsink range and we are equally happy to manufacture custom Heatsinks upon your request.

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-STAR-50X80MM	ILA-HSINK-78X46X25MM
Square Flat 1 PowerStar	350mA	Yellow	Green	Green	Green	Green	Green	Green
	700mA	Yellow	Green	Green	Green	Green	Green	Green
	1000mA	Red	Green	Green	Green	Green	Green	Green

Key

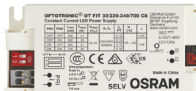
- Operates under the recommended ILS junction temperature
- Operates under the recommended LED maximum junction temperature
- Not suitable for use
- Heatsink not designed for use with this product




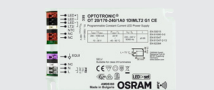


OSLON® Square Flat 1 PowerStar Power Supply Options

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 Watts	Current	LED Driver Forward Voltage	
IZC035-008F-5065C-SA	8W	350mA	3-36V	
IZC035-017F-0067A-SA	17W	350mA	6-48V	
IZC035-018T-9500A-SX	18W	350mA	15-52V	
IZC050-018T-9500A-SX	18W	500mA	9-36V	
IZC070-018T-9500A-SX	18W	700mA	6-26V	
IZC070-035F-0067C-SA	35W	700mA	9-48V	
IZC045-040A-9266C-SA	40W	450mA	30-89V	
IZC095-040M-9067C-SAL	40W	950mA	25.2-42V	
IZCVAR-040M-9020C-SAL	40W	350mA, 500mA, 600mA, 700mA, 900mA, 1050mA	350mA 2-100V, 500mA 2-80V, 600mA 2-67V, 700mA 2-57V, 900mA 2-45V, 1050mA 2-40V	
OT-FIT-30/220-240/700-CS-G2	30W	500-700mA	23-42V	
OT-FIT-40/220-240/1A0-LT2-LP	40W	500-1050mA	15-50V	

ILS Driver Part No.	Rating Watts	Current	LED Driver Forward Voltage	
OTE-10/220-240/700-PC	10W	700mA	7-14V	
OTi-DALI-10/220-240/700-NFC	10W	150-700mA	2.5-45V	
OTi-DALI-50/220...240/1A4-LT2-FAN-NFC	50W	600-1400mA	15-54V	
OT-20/170-240/800-4DIMLT2-G2-CE	20W	200-1050mA	10-38V	

OSLON® Square Flat 1 PowerStar Thermal Interface Material Options

ILS has 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.

Product	Non Adhesive	Single Sided Adhesive	Double Sided Adhesive
OSLON® Square Flat 1 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.
- The PowerStar, as manufactured, has no conformal coating and therefore offers 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 datasheet can change due to technical innovations. Any such changes will be made without separate notification.