SYNIOS® P2720 1 LED PowerStars

ILH-SY01-xxxx-SC2x1-WIR200.

Product Overview

At the heart of each SYNIOS® PowerStar is the SYNIOS® P2720 from OSRAM Opto Semiconductors. Given the scalability of this product family, it provides full performance and flexibility with just one footprint. The SYNIOS® P2720 is meant to provide superior light quality in 1mm² chip size class. PowerStars are compact, powerful LED light sources built on aluminium substrates for optimal thermal management. Available with 200mm wires as standard.

Applications

- General Lighting
- Exterior Automotive Lighting
- Day Time Running Light
- Working Lamp
- Bicycle Light
- Back-up Light
- Signalling
- Decorative Lighting

Technical Features

- Up to 50,000 hours lifetime to 70% of original brightness
- PowerStars contain SYNIOS® P2720 LEDs with a radiation angle of 120°
- Secondary Lens can be fitted – check options in suitable Lens and Reflector section
- Suitable Heatsink 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): 20mm x 20mm x 2.2mm
- PowerStars can be linked together to produce longer chains
- Current range 20-1000mA

*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 product 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	Colour *	Typical Wattage at 700mA §	Forward Voltage	Flux † at 700mA	Radiance Angle	Relevant OSRAM LED Data
ILH-SY01-WHWH-SC211-WIR200.	White x=0.32, y=0.33	2.07W	2.75-3.50V	190 lm	±60° (120°)	KW DMLS31.SG
ILH-SY01-CNYL-SC211-WIR200.	Converted Yellow x=0.57, y=0.42	2.07W	2.75-3.50V	106 lm	±60° (120°)	KY DMLQ31.FY
ILH-SY01-YELL-SC201-WIR200.	Yellow 590nm	2.07W	2.75-3.50V	63 lm	±60° (120°)	KY DMLS31.23
ILH-SY01-RED1-SC201-WIR200.	Red 620nm	1.76W	2.15-2.75V	71 lm	±60° (120°)	KR DMLS31.23
ILH-SY01-SRED-SC201-WIR200.	Super Red 632nm	1.70W	2.15-2.75V	50 lm	±60° (120°)	KS DMLS31.23
ILH-SY01-CNRD-SC201-WIR200.	Converted Red x = 0.64, y = 0.34	2.07W	2.75-3.50V	90 lm	±60° (120°	KR DMLS31.FR

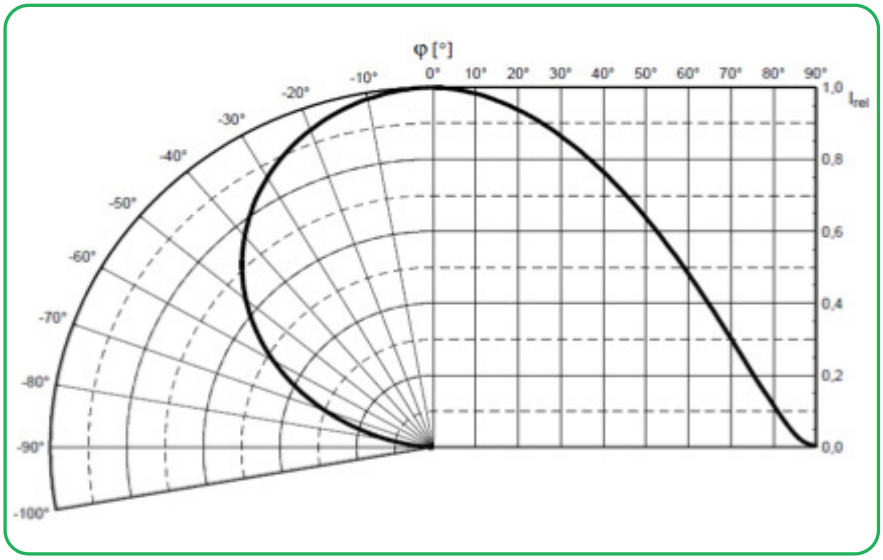
*Due to the special conditions of the manufacturing processes of LEDs, the typical data of technical parameters can only reflect statistical figures and do not necessarily correspond to the actual parameters of each single product which could differ from the typical data.
§ Tolerance +/- 10%
† Measured with 700mA pulse at 25˚c

Minimum and Maximum Ratings

ILS PART NUMBER	Operating Temperature at Tc-Point [˚C]*	Storage Temperature [˚C]*	Forward Current per chip [mA]*	Reverse Voltage
ILH-SY01-WHWH-SC211-WIR200.	-40 ... 125°C	-40 ... 125°C	1000mA	Not designed for reverse operation
ILH-SY01-CNYL-SC211-WIR200.	-40 ... 125°C	-40 ... 125°C	1000mA	Not designed for reverse operation
ILH-SY01-YELL-SC201-WIR200.	-40 ... 125°C	-40 ... 125°C	1000mA	Not designed for reverse operation
ILH-SY01-RED1-SC201-WIR200.	-40 ... 125°C	-40 ... 125°C	1000mA	Not designed for reverse operation
ILH-SY01-SRED-SC201-WIR200.	-40 ... 125°C	-40 ... 125°C	1000mA	Not designed for reverse operation
ILH-SY01-CNRD-SC201-WIR200.	40 ... 125°C	-40 ... 125°C	1000mA	Not designed for reverse operation

* 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)

Coming soon

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
FP11001_LISA2-M-PIN	20	9.9mm	**6.6mm**	LISA 2	+/-10	PC	Black	Pin + Glue
FP11002_LISA2-W-PIN	35	9.9mm	**6.6mm**	LISA 2	+/-17.5	PC	Black	Pin + Glue
FP11003_LISA2-WW-PIN	45	9.9mm	**6.6mm**	LISA 2	+/-22.5	PC	Black	Pin + Glue
FP11047_LISA2-RS-PIN	19	9.9mm	**6.6mm**	LISA 2	+/-9.5	PC	Black	Pin + Glue
FP11081_LISA2-M-CLIP	20	9.9mm	**6.6mm**	LISA 2	+/-10	PC	Black	Clips
FP11082_LISA2-W-CLIP	35	9.9mm	**6.6mm**	LISA 2	+/-17.5	PC	Black	Clips
FP11083_LISA2-WW-CLIP	45	9.9mm	**6.6mm**	LISA 2	+/-22.5	PC	Black	Clips
FP11084_LISA2-RS-CLIP	19	9.9mm	**6.6mm**	LISA 2	+/-9.5	PC	Black	Clips
FP11120_LISA2-O-CLIP	45x20	9.9mm	**6.6mm**	LISA 2	+/- 22.5X10	PC	Black	Clips
FP11124_LISA2-O-PIN	45x20	9.9mm	**6.6mm**	LISA 2	+/- 22.5X10	PC	Black	Pin + Glue
FP11429_LISA2-O-PIN	80	9.9mm	**6.6mm**	LISA 2	+/- 22.5X10	PC	Black	Pin + Glue
FP11431_LISA2-WWW-CLIP	80	9.9mm	**6.6mm**	LISA 2	+/-40	PC	Black	Clips
FP11957_LISA2-WWW-PIN	80	9.9mm	**6.6mm**	LISA 2	+/-40	PC	Black	Pin + Glue

PowerStar Heatsink Options

ILS has a series of Aluminium Alloy Heatsinks to be used with our standard range of PowerStars, PowerClusters and PowerLinear Engines. 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. Available in Black. 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							

SYNIOS P2720 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	IP Rating	Output Volts	
IZC035-004F-4065C-SAL	4W	350mA	IP65	3-12V	
IZC070-004F-4065C-SAL	4W	700mA	IP65	2-6V	
IZC035-008F-5065C-SA	8W	350mA	IP65	3-36V	
IZC070-008F-5065C-SA	8W	700mA	IP65	3-12V	
IZC035-017F-0067A-SA	17W	350mA	IP67	6-48V	
IZC035-018T-9500A-SX	18W	350mA	IP20	15-52V	
IZC050-018T-9500A-SX	18W	500mA	IP20	9-36V	
IZC070-018T-9500A-SX	18W	700mA	IP20	6-26V	
IZC070-035F-0067C-SA	35W	700mA	IP67	9-48V	
IZC045-040A-9266C-SA	40W	450mA	IP66	30-89V	
IZC095-040M-9067C-SAL	40W	950mA	IP67	25.2-42V	

ILS Driver Part No.	Rating	Current	IP Rating	Output Volts	
IZCVAR-040M-9020C-SAL	40W	350mA, 500mA, 600mA, 700mA, 900mA, 1050mA	IP20	350mA 2-100V, 500mA 2-80V, 600mA 2-67V, 700mA 2-57V, 900mA 2-57V, 1050mA 2-40V	
IZC070-050A-9267C-SA	50W	700mA	IP67	24-72V	
IZC050-060F-9067C-QA	60W	500mA	IP67	40-110V	
IZC070-075A-9267C-SA	75W	700mA	IP67	54-108V	
IZC140-120M-9065C-SAL	120W	1400mA	IP65	54-108V	

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 PowerStar generates little heat, TIM is therefore not needed. Our double sided thermal tape would be suitable for fixing the PowerStar 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 SYNIOS® P2720+ PowerStar.
- The SYNIOS® P2720+ 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, 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 housing 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.