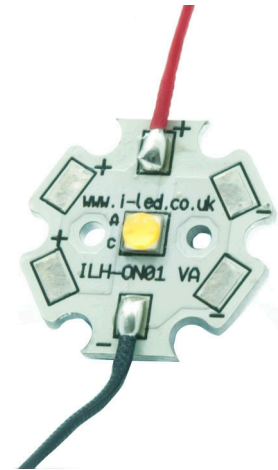


1 OSOLON® Square Large Lens High CRI ILH-OG01-##90-SC221-WIR200.

Product Overview

At the heart of each OSOLON® Square PowerStar high CRI is one of the worlds most compact 2W high power LEDs with extremely low thermal resistance, remarkable high efficiency, highly reliable and superior corrosion robustness. The latest generation of the OSOLON® Square still emits with a viewing angle of 120° but due to an increase in size of the silicone lens this improves the radiation pattern and enhances the performance. PowerStars are compact, powerful LED light sources built on aluminium substrates for optimal thermal management. Available with 200mm wires as standard.



Applications

- General Lighting
- Spot Lighting
- Task Lighting
- Decorative Lighting
- Horticultural Lighting
- Retail and Entertainment Lighting

Technical Features

- OSOLON® PowerStars contain a single OSRAM Opto Semiconductors OSOLON® SSL Square LED
- Up to 50,000 hours lifetime to 70% of original brightness
- Mounting holes using M3 screws allow easy installation
- Size (LxWxH): 20x20x3.62mm
- PowerStars can be linked together to produce longer chains
- Current range 200mA to 1800mA*
- High CRI 90 minimum

*This datasheet should be read in conjunction with the relevant OSRAM Opto Semiconductors data on the LED used
 Suitable Heatsinks available - please see Heatsink section
 Suitable Lenses available - Please see Lens section
 Suitable Drivers available - Please see drivers section

Important Information and Precautions

- PowerStars, when powered up, are very bright. Thus it is advised that you do not look directly at it. Turn the PowerStar away from you and do not shine into the eyes of others.
- Do not operate PowerStar 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 can cause irreparable damage.

Product Options

ILS PART NUMBER	Colour	Typical Wattage § at 700mA	Forward Voltage	Flux † at 700mA	Radiance Angle	Relevant OS-RAM LED Data
ILH-OG01-HW90-SC221-WIR200.	Hot White (2700K)	1.96W	2.7-3.2V	180lm	120° (±60°)	GW CSSRM2. CM
ILH-OG01-WM90-SC221-WIR200.	Warm White (3000K)	1.96W	2.7-3.2V	200lm	120° (±60°)	GW CSSRM2. CM
ILH-OG01-QW90-SC221-WIR200.	Quartz White (3500K)	1.96W	2.7-3.2V	210lm	120° (±60°)	GW CSSRM2. CM
ILH-OG01-NW90-SC221-WIR200.	Neutral White (4000K)	1.96W	2.7-3.2V	220lm	120° (±60°)	GW CSSRM2. CM
ILH-OG01-WW90-SC221-WIR200.	White (5000K)	1.96W	2.7-3.2V	220lm	120° (±60°)	GW CSSRM2. CM
ILH-OG01-ST90-SC211-WIR200.	Street White (5700K)	1.96W	2.7-3.2V	230lm	120° (±60°)	GW CSSRM2. CM
ILH-OG01-UL90-SC221-WIR200.	Ultra White (6500K)	1.96W	2.7-3.2V	230lm	120° (±60°)	GW CSSRM2. CM

*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%

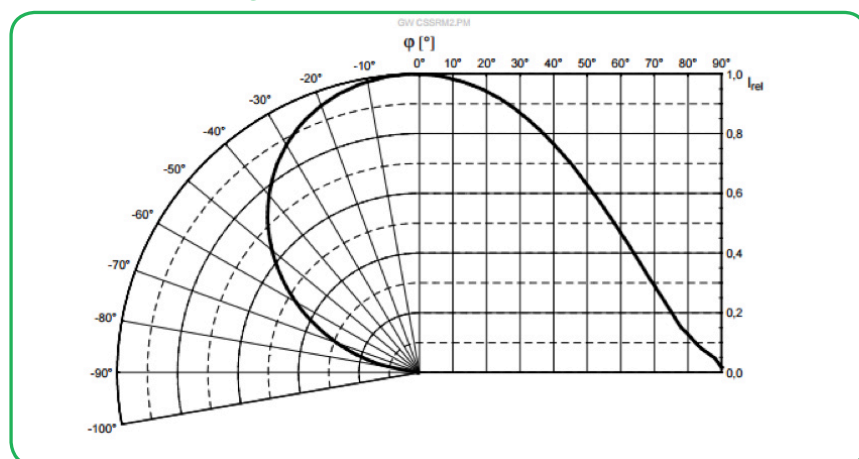
† Measured with 20mS 700mA pulse at 85 °C

Minimum and Maximum Ratings

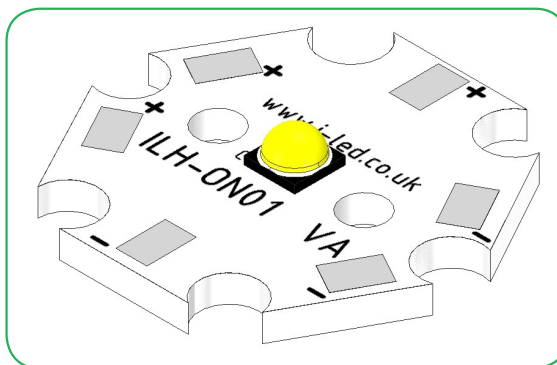
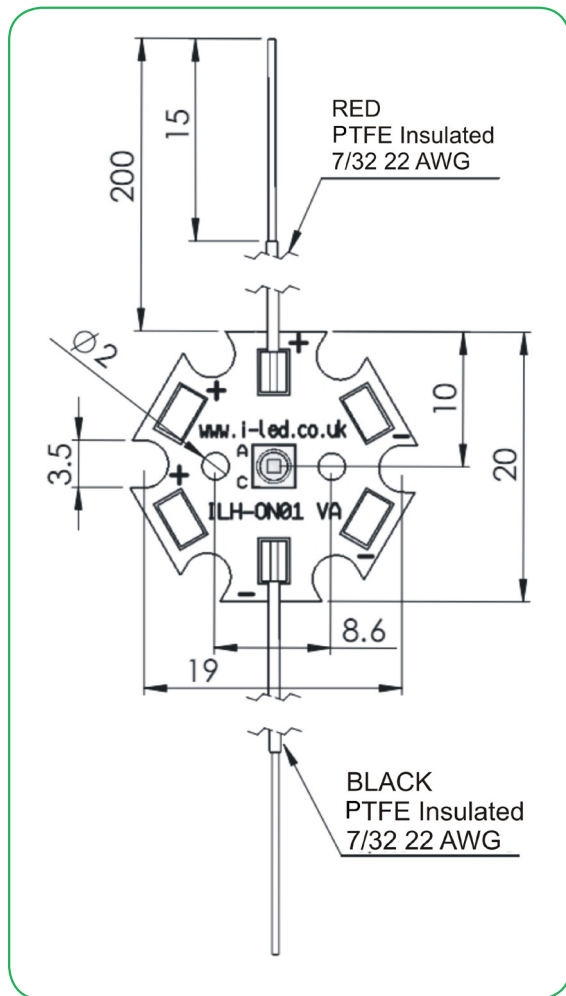
ILS PART NUMBER	Operating Temperature at Tc-Point [°C]*	Storage Temperature [°C]*	Forward Current per chip [mA]*	Reverse Voltage [Vdc]*
ILH-OG01-HW90-SC221-WIR200.	-40 ... 125 (°C)	-40 ... 125 (°C)	200mA ... 1800mA	Not designed for reverse voltage
ILH-OG01-WM90-SC221-WIR200.	-40 ... 125 (°C)	-40 ... 125 (°C)	200mA ... 1800mA	Not designed for reverse voltage
ILH-OG01-QW90-SC221-WIR200.	-40 ... 125 (°C)	-40 ... 125 (°C)	200mA ... 1800mA	Not designed for reverse voltage
ILH-OG01-NW90-SC221-WIR200.	-40 ... 125 (°C)	-40 ... 125 (°C)	200mA ... 1800mA	Not designed for reverse voltage
ILH-OG01-WW90-SC221-WIR200.	-40 ... 125 (°C)	-40 ... 125 (°C)	200mA ... 1800mA	Not designed for reverse voltage
ILH-OG01-ST90-SC211-WIR200.	-40 ... 125 (°C)	-40 ... 125 (°C)	200mA ... 1800mA	Not designed for reverse voltage
ILH-OG01-UL90-SC221-WIR200.	-40 ... 125 (°C)	-40 ... 125 (°C)	200mA ... 1800mA	Not designed for reverse voltage

* 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



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

1 OSLOM Square 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 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/Lens	Colour	Fastening
C13155_EMERALD-A	O	21.6	6.9	Emerald	0	PMMA	clear	glue, pin
CA13156_EMERALD-A	O	21.6	7.3	Emerald	152+76	PMMA	clear	tape, pin
CA11388_EMILY-M	M	26	14.85	Emily	0	PMMA	clear	tape, pin
CA11389_EMILY-O	O	26	14.97	Emily	0	PMMA	clear	tape, pin
CA11391_EMILY-M2	M2	26	14.88	Emily	0	PMMA	clear	tape, pin
CA12062_EMILY-D	D	26	14.74	Emily	0	PMMA	clear	tape, pin
CA13546_EMILY-RS	RS	26	14.74	Emily	0	PMMA	clear	tape
CA15359_EMILY-WW	WW	26	14.74	Emily	44	PMMA	clear	pin, tape
FCA15451_FLORENTINA-1-M		39.7x39.7	17.55	Florentina	31	PC	black	
FCA15452_FLORENTINA-1-O	O	39.7x39.7	17.552	Florentina	44+17	PC	black	

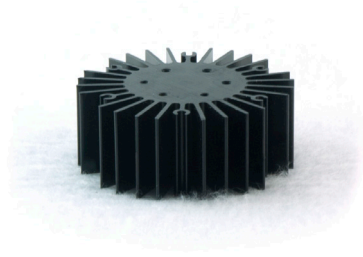
Ordering Code	Beam	Diameter	Height	Family	FWHM	Material/Lens	Colour	Fastening
FCA15453_FLORENTINA-1-W	W	39.7x39.7	17.552	Florentina	44	PC,PC	black	
FC15456_FLORENTINA-1-D-60	D	39.7x39.7	31.87	Florentina	20		black	tape
FC15457_FLORENTINA-1-M-60	M	39.7x39.7	31.87	Florentina	31	PC	black	tape
FC15458_FLORENTINA-1-O-60	O	39.7x39.7	31.87	Florentina	44+17		black	tape
FC15459_FLORENTINA-1-W-60	W	39.7x39.7	31.87	Florentina	44		black	tape
CA16202_GABRIELLA-MIDI-S	S	37.8	24.08	Gabriella	0	PMMA	black	tape, pin
CA11264_HEIDI-D	D	21.6	11.7	Heidi		PMMA	clear	pin, tape
CA11265_HEIDI-M	M	21.6	11.7	Heidi		PMMA	clear	tape, pin
CA11266_HEIDI-O	O	21.6	11.7	Heidi	52+13	PMMA	clear	pin, tape
CA11267_HEIDI-O-90	O-90	21.6	12.1	Heidi	15+51	PMMA	clear	tape, pin
CA11268_HEIDI-W	W	21.6	11.7	Heidi	32	PMMA	clear	pin, tape
CA11663_HEIDI-RS	RS	21.6	11.7	Heidi	10	PMMA	clear	pin, tape
CA12242_HEIDI-SS	SS	21.6	11.7	Heidi		PMMA	clear	tape, pin
CA14505_G2-LXP2-RS2-P	RS2	21.8	14.7	Leila		PMMA	black	pin, tape
CA14507_G2-LXP2-D-P	D	21.8	14.7	Leila			black	tape, pin
CA14509_G2-LXP2-M-P	M	21.8	14.7	Leila			black	tape, pin
FP13028_LISA2-M-PIN	M	9.9	6.8	Lisa	0	PMMA	black	pin, glue
FP13030_LISA2-M-CLIP	M	9.9	6.8	Lisa	0	PMMA	black	glue, clips
FCP13895_SEANNA-A	RS	152.6	79	Seanna	1.5	PMMA	black	pin, screw
C13472_STRADA-B2		19.6 x 15.5	5.2	Strada		PMMA	clear	glue, pin
C12726_STRADA-SQ-T-DWC	Street	25 x 25	8	Strada		PMMA	clear	glue, pin, screw
C12727_STRADA-SQ-VSM	Street	25 x 25	6.8	Strada		PMMA	clear	glue, screw, pin
CA16206_SURI-RS	RS	37.8	24	Suri	0	PMMA	black	tape, pin
CA12377_TINA2-M	M	16	9.5	Tina	0	PMMA	black	tape, pin
FA11208_TINA-RS	RS	16.1	9.5	Tina	0	PMMA	black	tape, pin
FA11209_TINA-D	D	16.1	9.4	Tina	0	PMMA	black	tape, pin
CA12346_TINA2-RS	RS	16.1	9.5	Tina	0	PMMA	white	tape
CA12347_TINA2-D	D	16.1	9.5	Tina	0	PMMA	white	tape
CA12426_TINA3-W	W	16.1	6.9	Tina	0	PMMA	white	tape, pin
C13253_TINA2-R-CLIP16	WW	16.1	10.1	Tina	0		clear	clips
CA14601_VERONICA-SQ-MINI-RS	RS	13.9+13.9	8.86	Veronica		PMMA	clear	tape, pin
CA14602_VERONICA-SQ-MINI-O	O	13.9+13.9	8.86	Veronica		PMMA	clear	tape, pin
CA15519_VERONICA-SQ-MINI-D	D	13.9+13.9	8.86	Veronica	0	PMMA	clear	tape, pin
CA13724_VERONICA-SQ-RS	RS	22.5 + 22.5	12.2	Veronica		PMMA	clear	tape, pin
CA13726_VERONICA-SQ-O	O	22.5 + 22.5	12.2	Veronica		PMMA	clear	tape, pin
CA14442_VERONICA-SQ-W	W	22.5x22.5	12.2	Veronica		PMMA	clear	
C13528_VERONICA-RS	RS	26	12.2	Veronica	0	PMMA	clear	glue, pin
C12608_VIRPI-M	M	74.9 x 74.9	9.5	Virpi		PMMA	clear	glue, pin
C12609_VIRPI-W	W	74.9 x 74.9	9.5	Virpi		PMMA	clear	glue, pin

1 OSLOM Square PowerStar Heatsink Option

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. 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.
Oslon 1+ PowerStars	350mA							
	700mA							
	1000mA							
	1400mA	Under Characterisation						
	1800mA	Under Characterisation						










1 OSLO Square 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	PowerStar per LED Driver	
IZC035-004F-4065C-SAL	4W	350mA	1-4	
IZC070-004F-4065C-SAL	4W	700mA	1	
IZC035-008F-5065C-SA	8	350mA	2-12	
IZC070-008F-5065C-SA	8	700mA	2-4	
IZC035-017F-0067A-SA	17	350mA	3-16	
IZC035-018T-9500A-SX	18	350mA	5-17	
IZC050-018T-9500A-SX	18	500mA	3-12	
IZC070-018T-9500A-SX	18	700mA	2-8	
IZC035-035F-9067C-SA	35	350mA	13-26	
IZC070-035F-0067C-SA	35	700mA	3-16	
IZC105-035F-9067C-SA	35	1050mA	5-10	
IZC045-040A-9266C-SA	40	450mA	10-30	

ILS Driver Part No.	Rating Watts	Current	PowerStar per LED Driver	
IZC105-040A-0067C-SA	40	1050mA	7-13	
IZC070-050A-9267C-SA	50	700mA	8-24	
IZC050-060F-9067C-QA	60	500mA	13-36	
IZC105-060F-9067C-QA	60	1050mA	10-20	
IZC140-060F-9067C-QA	60	1400mA	7-14	
IZC070-075A-9267C-SA	75	700mA	18-36	
IZC140-075F-9067A-QA	75	1400mA	10-17	

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 Heat Sink. ILS offer our TIM in three options – double sided adhesive, single sided adhesive and non adhesive.

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

Assembly Information

- The mounting of the OSLO[®] Square 1+ PowerStar has to be on a metal Heat Sink.
- 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 OSLO[®] Square 1+ PowerStars.
- The OSLO[®] Square 1+ 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 T_c 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.