OSLON® Black 4 PowerStar IR

ILH-I#04-####-SC2#1-WIR200. Series

Product Overview

At the heart of each PowerStar are 4 IR OSLON® Black Series LEDs from OSRAM Opto Semiconductors, which are today's smallest infrared LEDs with more than one watt of optical power. The small package with an integrated lens allows superior, compact arrangements of very high power density. PowerStars are compact, powerful LED light sources built on aluminium substrates for optimal thermal management. Available with 200mm wires as standard.

Applications

- Surveillance systems
- IR illumination for cameras
- Machine vision
- Night vision light
- Driver assistance systems

Technical Features

- OSLON® 4 IR PowerStars contain 4 OSRAM IR OSLON® Black Series LED with either a 50, 90 or 150 degree integrated silicone lens
- Up to 100,000 Hour lifetime to 70% of original brightness
- Mounting holes using M3 screws allows easy installation
- Size: (L x W x H) with 50 degree lens 20mm x 20mm x 4.2mm
- Size: (L x W x H) with 90 degree lens 20mm x 20mm x 4.0mm
- Size: (L x W x H) with 150 degree lens 20mm x 20mm x 3.1mm
- 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
- PowerStars can be linked together to produce longer chains

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

Important Information and Precautions

- The PowerStar's LED, when powered up, is very powerful. Although the light may appear off, however IR is invisible to the human eye and can still damage eyes. 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.
- PowerStars will overheat in operation if not attached to a suitable Heatsink. Over heating 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 can cause irreparable damage.

Product Options

ILS Part Number	IR centroid wavelength	Radiant intensity IF = 1 A , tp = 10 ms§	Forward Voltage†	Radiance Angle	Relevant OSRAM LED Data Sheet
ILH-IO04-81SL-SC201-WIR200.	810nm	4160mW	106-12.8V	±45° (90°)	SFH4703AS
ILH-IN04-85NL-SC201-WIR200.	850nm	2660mW	7-9.2V	±25° (50°)	SFH4718A
ILH-IN04-85SL-SC211-WIR200.	850nm	4920mW	11.8-13.6V	±25° (50°)	SFH4717AS
ILH-IO04-85NL-SC201-WIR200.	850nm	2520mW	6-7.2V	±45° (90°)	SFH4715
ILH-IO04-85NL-SC211-WIR200.	850nm	3080mW	6.6-8.4V	±45° (90°)	SFH4715A
ILH-IO04-85SL-SC201-WIR200.	850nm	3904mW	11.6-13.6V	±45° (90°)	SFH4715S
ILH-IO04-85SL-SC211-WIR200.	850nm	5360mW	12.8-14.4V	±45° (90°)	SFH4715AS
ILH-IW04-85NL-SC201-WIR200.	850nm	2960mW	6.6-8.4V	±75° (150°)	SFH4716A
ILH-IW04-85SL-SC211-WIR200.	850nm	4120mW	11.6-13.6V	±75° (150°)	SFH4716S
ILH-IW04-85SL-SC221-WIR200.	850nm	5080mW	12.8-14.4V	±75° (150°)	SFH4716AS
ILH-IN04-94SL-SC211-WIR200.	940nm	4920mW	12.8-14.4V	±25° (50°)	SFH4727AS
ILH-IO04-94SL-SC201-WIR200.	940nm	3960mW	11.6-13.6V	±45° (90°)	SFH4725S
ILH-IO04-94SL-SC211-WIR200.	940nm	5360mW	12.8-14.4V	±45° (90°)	SFH4725AS
ILH-IW04-94SL-SC201-WIR200.	940nm	3960mW	11.6-13.6V	±75° (150°)	SFH4726S
ILH-IW04-94SL-SC211-WIR200.	940nm	5360mW	12.8-14.4V	±75° (150°)	SFH4726AS

*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 10ms pulse at 1A at 25˚C

Minimum and Maximum Ratings

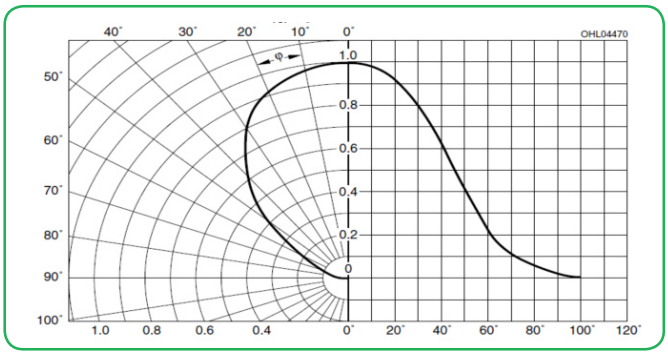
ILS Part Number	Operating Temperature at Tc-Point [°C]*	Storage Temperature [°C]*	Maximum Current per chip [mA]*	Surge Current per chip [mA]*	Reverse Voltage [Vdc]*
ILH-IO04-81SL-SC201-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1000mA	2000mA	1.2V
ILH-IN04-85NL-SC201-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1000mA	1000mA	5.0V
ILH-IN04-85SL-SC211-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1500mA	5000mA	5.0V
ILH-IO04-85NL-SC201-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1000mA	5000mA	1.0V
ILH-IO04-85NL-SC211-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1500mA	2000mA	5.0V
ILH-IO04-85SL-SC201-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1000mA	5000mA	1.0V
ILH-IO04-85SL-SC211-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1500mA	3000mA	1.0V
ILH-IW04-85NL-SC201-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1500mA	2000mA	5.0V
ILH-IW04-85SL-SC211-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1000mA	5000mA	1.0V
ILH-IW04-85SL-SC221-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1500mA	3000mA	1.0V
ILH-IN04-94SL-SC211-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1500mA	5000mA	5.0V
ILH-IO04-94SL-SC201-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1000mA	5000mA	1.0V
ILH-IO04-94SL-SC211-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1500mA	5000mA	5.0V
ILH-IW04-94SL-SC201-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1000mA	5000mA	1.0V
ILH-IW04-94SL-SC211-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1500mA	5000mA	5.0V

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

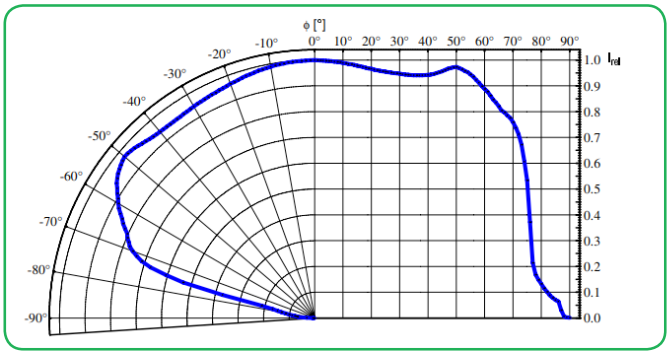
Exceeding maximum ratings for operating voltage will cause hazardous overload and will likely destroy the LED module.

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.

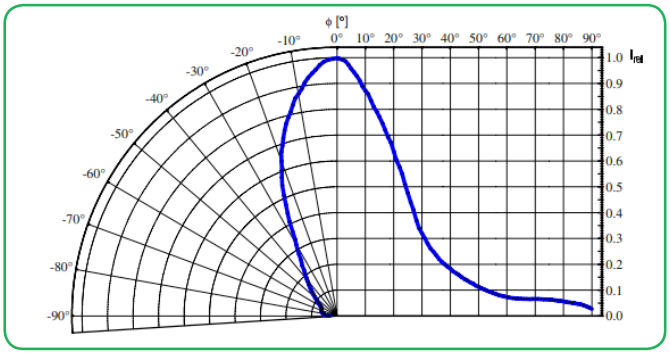
Radiation of single LED (IO)



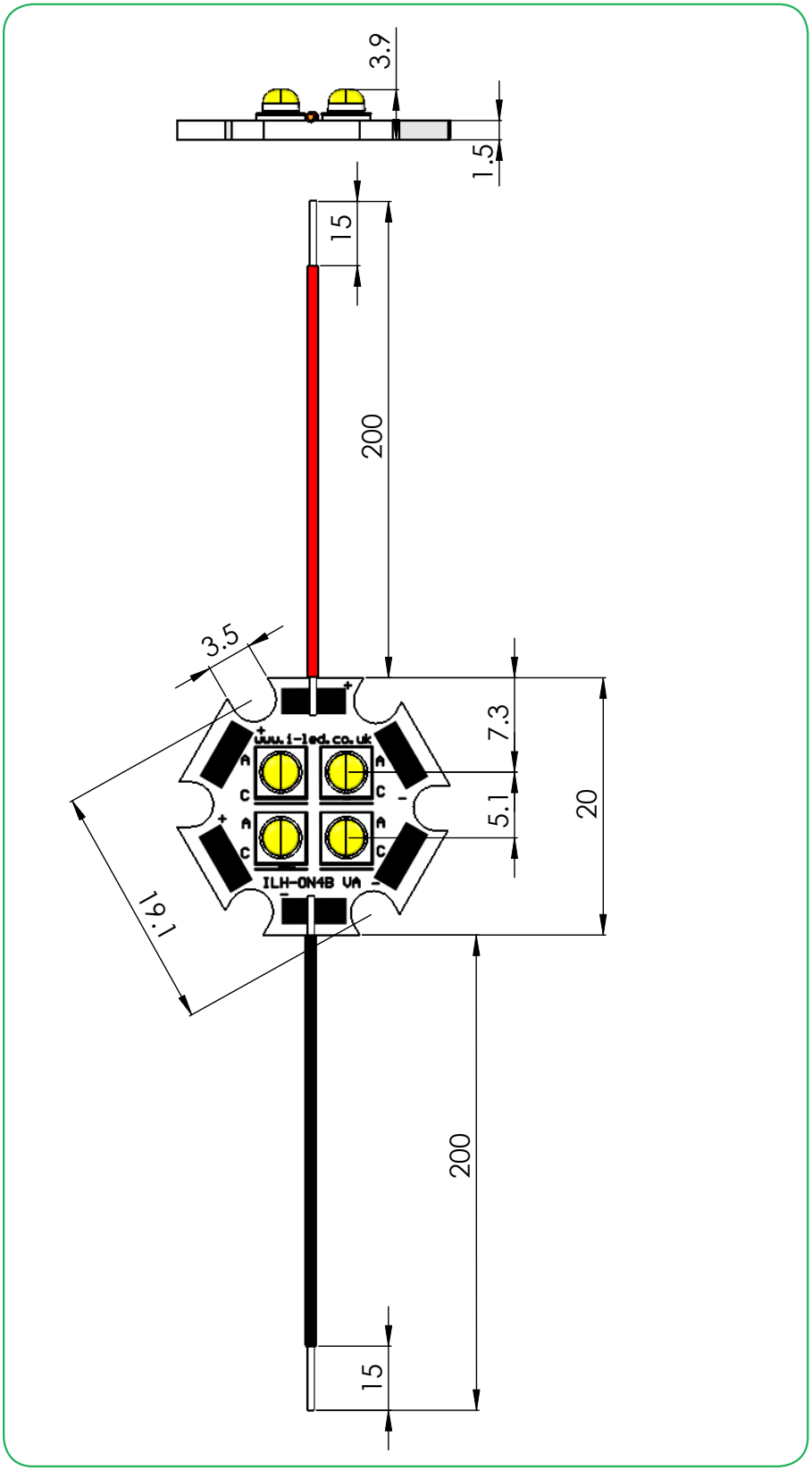
Radiation of single LED (IW)



Radiation of single LED (IN)



Technical Drawing with Cables (mm)



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

OSLON® 4 PowerStar IR Lens

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.

Although there are currently no optics designed for 4 OSLON IR PowerStars ILS have introduced a range of adaptor plates to complement their range of star and cluster products.

ILS Part Number

ILA-REF-ADP-STAR-01.

RS No. 111-3733

LEDiL Part Number	Beam	FWHM	Material/Lens	Material/Holder	Material/Reflector	Colour
C12598_LENINA-M	M	35			PC	metal
CN14582_LENINA-S-DL	S	25	PC		PC	metal
CN14583_LENINA-M-DL	M	37	PC		PC	metal
CN14584_LENINA-W-DL	W	55	PC		PC	metal
CN14585_LENINA-XW-DL	WWW	71				white
CN14489_LENINA-S	S	12		PC	PC	white
CN14490_LENINA-M	M	21		PC	PC	white
CN14492_LENINA-XW	WWW	73		PC	PC	white
C12606_LENINA-DL	D	N/A	PC			clear
C12597_LENINA-S	S	23			PC	metal
C12599_LENINA-W	W	54			PC	metal
CN12600_LENINA-S	S	15		PC	PC	metal
CN12601_LENINA-M	M	29		PC	PC	metal
CN12602_LENINA-W	W	54		PC	PC	metal
CN12603_LENINA-S-DL	S	20		PC	PC	metal
CN12604_LENINA-M-DL	M	36		PC	PC	metal
CN12605_LENINA-W-DL	W	54		PC	PC	metal
CN12638_LENINA-S	S	16		PC	PC	metal
CN12639_LENINA-M	M	28		PC	PC	metal
CN12640_LENINA-W	W	50		PC	PC	metal
CN12641_LENINA-S-DL	S	20		PC	PC	metal
CN12642_LENINA-M-DL	M	33		PC	PC	metal
CN12643_LENINA-W-DL	W	52		PC	PC	metal
CN12644_LENINA-S	S	17		PC	PC	metal
CN12645_LENINA-M	M	21		PC	PC	metal
CN12646_LENINA-W	W	57		PC	PC	metal
CN12647_LENINA-S-DL	S	24		PC	PC	metal
CN12649_LENINA-W-DL	W	59		PC	PC	metal

LEDiL Part Number	Beam	FWHM	Material/Lens	Material/Holder	Material/Reflector	Colour
CN12650_LENINA-S	S	17		PC	PC	metal
CN12651_LENINA-M	M	30		PC	PC	metal
CN12652_LENINA-W	W	48		PC	PC	metal
CN12653_LENINA-S-DL	S	22		PC	PC	metal
CN12654_LENINA-M-DL	M	35		PC	PC	metal
CN12655_LENINA-W-DL	W	50		PC	PC	metal
CN12656_LENINA-S	S	28		PC	PC	metal
CN12657_LENINA-M	M	44		PC	PC	metal
CN12658_LENINA-W	W	64		PC	PC	metal
CN12659_LENINA-S-DL	S	32		PC	PC	metal
CN12660_LENINA-M-DL	M	47		PC	PC	metal
CN12661_LENINA-W-DL	W	60		PC	PC	metal
CN12700_LENINA-S	S	15		PC	PC	metal
CN12701_LENINA-M	M	26		PC	PC	metal
CN12702_LENINA-W	W	56		PC	PC	metal
CN12703_LENINA-S-DL	S	16		PC	PC	metal
CN12704_LENINA-M-DL	M	30		PC	PC	metal
CN12706_LENINA-S	S	27		PC	PC	metal
CN12707_LENINA-M	M	40		PC	PC	metal
CN12708_LENINA-W	W	58		PC	PC	metal
CN12709_LENINA-S-DL	S	30		PC	PC	metal
CN12710_LENINA-M-DL	M	40		PC	PC	metal
CN12711_LENINA-W-DL	W	56		PC	PC	metal
CN12918_LENINA-S	S	17		PC	PC	metal
CN12919_LENINA-M	M	28		PC	PC	metal
CN12920_LENINA-W	W	50		PC	PC	metal
CN12921_LENINA-S-DL	S	18		PC	PC	metal
CN12922_LENINA-M-DL	M	32		PC	PC	metal
CN12923_LENINA-W-DL	W	58		PC	PC	metal
CN12932_LENINA-S	S	16		PC	PC	metal
CN12933_LENINA-M	M	30		PC	PC	metal
CN12934_LENINA-W	W	55		PC	PC	metal
CN12935_LENINA-S-DL	S	17.5	PC	PC	PC	metal
CN12936_LENINA-M-DL	M	30	PC	PC	PC	metal
CN12937_LENINA-W-DL	W	56	PC	PC	PC	metal
C12958_LENINA-XW	WWW	74			HRPC	white
CN12959_LENINA-XW	WWW	72		PC	HRPC	white
CN12960_LENINA-XW	WWW	74		PC	HRPC	white
CN12961_LENINA-XW	WWW	76		PC	HRPC	white

LEDiL Part Number	Beam	FWHM	Material/Lens	Material/Holder	Material/Reflector	Colour
CN12962_LENINA-XW	WWW	73		PC	HRPC	white
CN12963_LENINA-XW	WWW	75		PC	HRPC	white
CN12966_LENINA-XW	WWW	72		PC	HRPC	white
CN12968_LENINA-XW	WWW	73		PC	HRPC	white
CN12969_LENINA-XW	WWW	72		PC	HRPC	white
CN12970_LENINA-XW-DL	WWW	70	PC	PC	HRPC	white
CN12971_LENINA-XW-DL	WWW	71	PC	PC	HRPC	white
CN12973_LENINA-XW-DL	WWW	87	PC	PC	HRPC	white
CN12974_LENINA-XW-DL	WWW	73	PC	PC	HRPC	white
CN12975_LENINA-XW-DL	WWW	72	PC	PC	HRPC	white
CN12976_LENINA-XW-DL	WWW	72	PC	PC	HRPC	white
CN12976_LENINA-XW-DL	WWW	71	PC	PC	HRPC	white
CN12976_LENINA-XW-DL	WWW	71	PC	PC	HRPC	white
CN12977_LENINA-XW-DL	WWW	68	PC	PC	HRPC	white
CN12978_LENINA-XW-DL	WWW	72	PC	PC	HRPC	white
CN12978_LENINA-XW-DL	WWW	74	PC	PC	HRPC	white
CN12979_LENINA-XW-DL	WWW	71	PC	PC	HRPC	white
CN13110_LENINA-S	S	24		PC	PC	metal
CN13111_LENINA-M	M	39		PC	PC	metal
CN13112_LENINA-W	W	64		PC	PC	metal
CN13113_LENINA-S-DL	S	26	PC	PC	PC	metal
CN13114_LENINA-M-DL	M	42	PC	PC	PC	metal
CN13115_LENINA-W-DL	W	61	PC	PC	PC	metal
CN13196_LENINA-S	S	10		PC	PC	metal
CN13197_LENINA-M	M	17		PC	PC	metal
CN13199_LENINA-S-DL	S	12	PC	PC	PC	metal
CN13200_LENINA-M-DL	M	22	PC	PC	PC	metal
CN13201_LENINA-W-DL	W	48	PC	PC	PC	metal
CN13201_LENINA-W-DL	W	47	PC	PC	PC	metal
CN13203_LENINA-XW-DL	W	69		PC	PC	white
CN13344_LENINA-S	S	22		PC	PC	metal
CN13345_LENINA-M	M	33		PC	PC	metal
CN13346_LENINA-W	W	51		PC	PC	metal
CN13347_LENINA-S-DL	S	23	PC	PC	PC	metal
CN13348_LENINA-M-DL	M	35	PC	PC	PC	metal
CN13349_LENINA-W-DL	W	52	PC	PC	PC	metal
CN13351_LENINA-XW	WWW	70		PC	HRPC	white
CN13352_LENINA-XW-DL	WWW	70	PC	PC	HRPC	white
CN14093_LENINA-S	S	40		PC	PC	metal

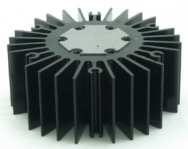
LEDiL Part Number	Beam	FWHM	Material/Lens	Material/Holder	Material/Reflector	Colour
CN14094_LENINA-M	M	35		PC	PC	metal
CN14095_LENINA-W	W	67		PC	PC	metal
CN14096_LENINA-XW	WWW	76		PC		metal
CN14097_LENINA-XW-DL	WWW	77		PC		metal
CN14098_LENINA-W-DL	W	60		PC	PC	metal
CN14099_LENINA-M-DL	M	52		PC	PC	metal
CN14100_LENINA-S-DL	S	40	PC	PC	PC	metal
CN14101_LENINA-S	S	15		PC	PC	metal
CN14102_LENINA-M	M	28		PC	PC	metal
CN14103_LENINA-W	W	0		PC	PC	metal
CN14104_LENINA-XW	WWW	75		PC		metal
CN14105_LENINA-S-DL	S	0	PC	PC	PC	metal
CN14106_LENINA-M-DL	M	31		PC	PC	metal
CN14107_LENINA-W-DL	W	0	PC	PC	PC	metal
CN14108_LENINA-XW-DL	WWW	75	PC	PC	PC	metal

OSLON® 4 PowerStar IR Heatsink Options

ILS has 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.
OSLON® 1 IR PowerStar	350mA							
	700mA							
	1000mA							
OSLON® 4 IR PowerStar	350mA							
	700mA							
	1000mA							
OSLON® 9 IR PowerCluster	350mA							
	700mA							
	1000mA							
OSLON® 16 IR PowerCluster	350mA							
	700mA							
	1000mA							



OSLON® 4 PowerStar IR 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 Number	Rating (Watts)	Current (mA)	Forward Voltage	
ILA-1CH-LED-TESTER-PREC-01	16W	10-700mA	2-20V	
IZC035-004F-4065C-SAL	4W	350mA	3-12V	
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	25-42V	
IZCVAR-040M-9020C-SAL	40W	350mA 500mA 600mA 700mA 900mA 1050mA	2-100V 2-80V 2-67V 2-57V 2-45V 2-40V	

ILS Driver Part Number	Rating (Watts)	Current (mA)	Forward Voltage	
IZC070-050A-9267C-SA	50W	700mA	24-72V	
IZC050-060F-9067C-QA	60W	500mA	40-110V	
IZC070-075A-9267C-SA	75W	700mA	54-108V	
IZC140-120M-9065C-SAL	120W	1400mA	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.

These products fill the air pockets between the two surfaces, forming a continuous layer to conduct heat away from the LED to the Heatsink.

ILS offer 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.
25x25mm Cluster	ILA-TIM-CLUSTER-25x25-0A	ILA-TIM-CLUSTER-25x25-1A	ILA-TIM-CLUSTER-25x25-2A.
30x30mm Cluster	ILA-TIM-CLUSTER-30x30-0A	ILA-TIM-CLUSTER-30x30-1A	ILA-TIM-CLUSTER-30x30-2A.
300x20mm Strip	ILA-TIM-STRIP-300x20-0A	ILA-TIM-STRIP300x20-1A	ILA-TIM-STRIP-300x20-2A.
25x15mm Strip	ILA-TIM-STRIP-25x15-0A	ILA-TIM-STRIP-25x15-1A	ILA-TIM-STRIP-25x15-2A.
58x58mm Square	ILA-TIM-SQUARE-58X58-0A	ILA-TIM-SQUARE-58X58-1A	ILA-TIM-SQUARE-58X58-2A.

Other sizes are available, including customised parts

Assembly Information

- The mounting of the OSLON® 4 PowerStar IR 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 OSLON® 4 PowerStar IRs.
- The OSLON® 4 PowerStar IRs, 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.
- Depending on the mode of operation, these devices emit highly concentrated non visible infrared light which can be hazardous to the human eye. Products which incorporate these devices have to follow the safety precautions given in IEC 60825-1 and IEC 62471.

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.