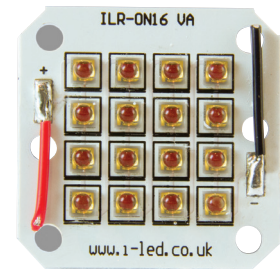


# OSLON® Square 16 PowerCluster Colours

IHR-OG 16-xxxx-SC221-WIR200.

## Product Overview

At the heart of each PowerCluster are 16 OSLON® Square LEDs. OSLON® Square Hyper Red LEDs can be driven up to 1000mA and Deep Blue LEDs can be driven up to 2000mA while OSRAM's latest power chip technology remains efficient even at the highest drive currents. A low thermal resistance of 7K/W ensures cool running and a highly efficient product. PowerClusters are compact, powerful LED light sources built on aluminium substrates for optimal thermal management. Available with 200mm wires as standard.



Examples of how unique wavelengths can help with plant growth:

Colour Combination	Works For
Deep Blue + Hyper Red	Leafy greens such as lettuce and basil
Deep Blue + Hyper Red + Far Red	Leafy greens such as basil and aids in seed germination, stem elongation and leaf expansion
Deep Blue + Hyper Red + Yellow + Green	Flowering plants where biomass is the goal
White	Whites are added when the end application has no daylight, and these products offer the only source of useable wavelengths.

## Applications

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

## Technical Features

- OSLON® Square PowerClusters contain 16 OSLON® Square LEDs with integral 120 degree silicone resin lens, from OSRAM Opto Semiconductors
- 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): 30mm x 30mm x 3.95mm
- Available with 200mm connecting wires
- Secondary Lens can be fitted – check suitable options in Lens and Reflector section
- Suitable Heatsink available – check options in Heatsink section
- Matching Power Supplies available - check options in Power Supply section
- PowerClusters can be linked together to produce longer chains
- Current range for Hyper Red 100 to 1,000mA
- Current range for Deep Blue 200 to 2,000mA

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

## Important Information and Precautions

- The PowerCluster's LED, when powered up, is very bright. Thus it is advised that you do not look directly at it. Turn the PowerCluster away from you and do not shine into the eyes of others.
- PowerClusters will overheat in operation if not attached to a suitable Heatsink. Over heating can cause failure or irreparable damage.
- Do not operate PowerClusters with a Power Supply with unlimited current. Connection to constant voltage Power Supplies that are not current limited may cause the PowerCluster to consume current above the specified maximum and cause failure or irreparable damage.
- PowerClusters, 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

IHS Part Number	Colour	Wavelength*	Typical Wattage at 700mA §	Forward Voltage	Flux at † 700mA	Radiance Angle	Relevant OSRAM LED Data
IHR-OG 16-DEBL-SC221-WIR200.	Deep Blue	455nm	31.36W	44.80-51.20V	20,800mW	120° (±60°)	GD CSSRM3.14
IHR-OG 16-HYRE-SC221-WIR200.	Hyper Red	660nm	21.28W	30.40-41.60V	13,200mW	120° (±60°)	GH CSSRM3.24
IHR-OG 16-HYRE-SC231-WIR200.	Hyper Red	660nm	21.28W	28.80-36.80V	15,360mW	120° (±60°)	GH CSSRM4.24

\* 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

## Micromoles

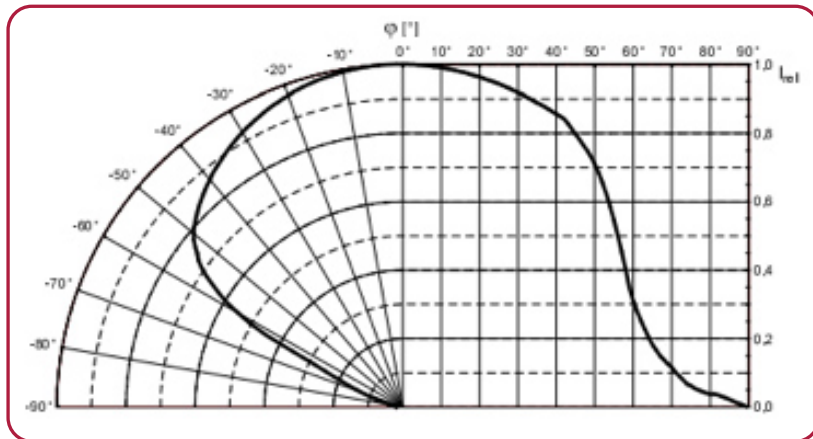
IHS Part Number	PAR (400-700nm)	Photon Flux (240-790nm)	DIN5031-10 (400-725nm)	McCree (400-700nm)	McCree (300-800nm)
IHR-OG 16-DEBL-SC221-WIR200.	78.43umol/s	78.54umol/s	73.93YPF umol/s	57.80 YPF umol/s	57.87 YPF umol/s
IHR-OG 16-HYRE-SC221-WIR200.	80.73 umol/s	80.97 umol/s	64.96 YPF umol/s	75.51 YPF umol/s	75.57 YPF umol/s
IHR-OG 16-HYRE-SC231-WIR200.	83.78 umol/s	84.04 umol/s	67.42 YPF umol/s	78.37 YPF umol/s	78.43 YPF umol/s

## Minimum and Maximum Ratings

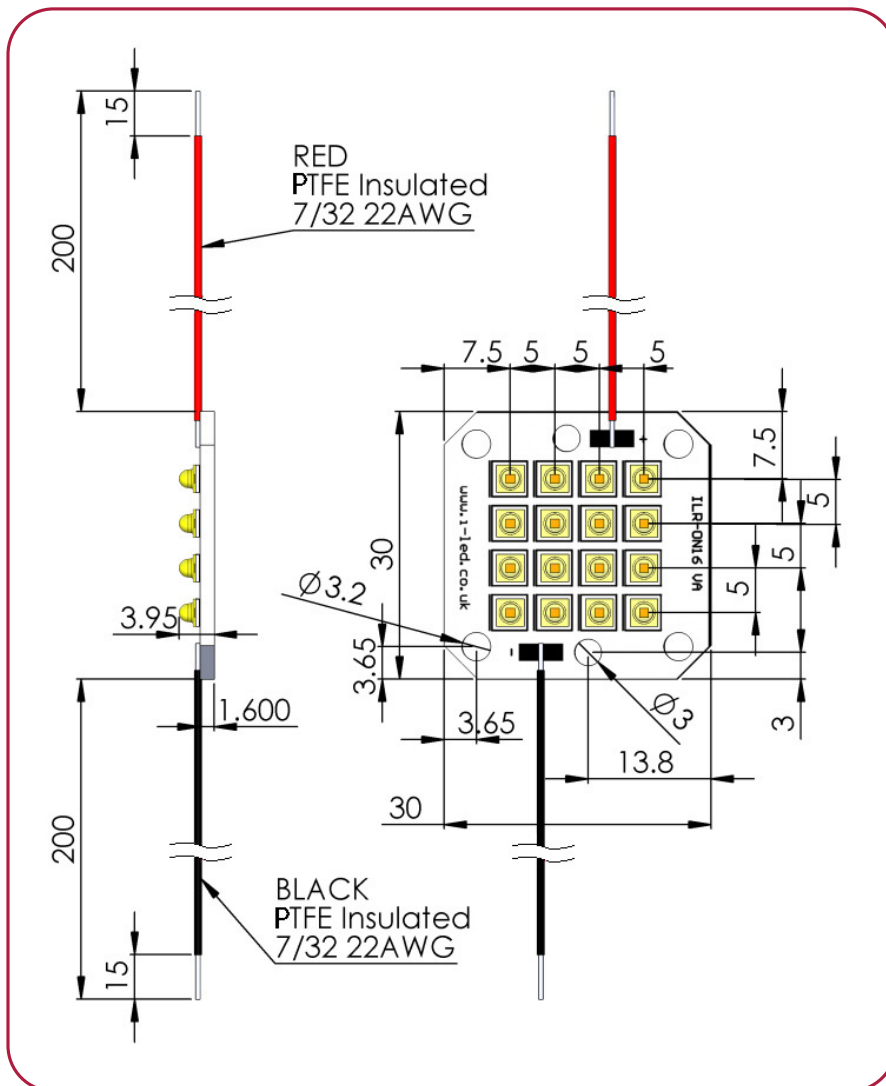
IHS PART NUMBER	Operating Temperature at Tc-Point [°C]*	Storage Temperature [°C]*	Forward Current per chip [mA]*	Reverse Voltage [Vdc]*
IHR-OG 16-DEBL-SC221-WIR200.	70 °C max	- 40 to 120 °C	2,000mA max	not designed for reverse voltage
IHR-OG 16-HYRE-SC221-WIR200.	70 °C max	- 40 to 120 °C	1,000mA max	not designed for reverse voltage
IHR-OG 16-HYRE-SC231-WIR200.	70 °C max	- 40 to 125 °C	1,000mA max	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 (mm)**



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

## OSLON® Square LED PowerCluster 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.



Currently there are no Lens or Reflector options for the OSLON® 16 range of products.

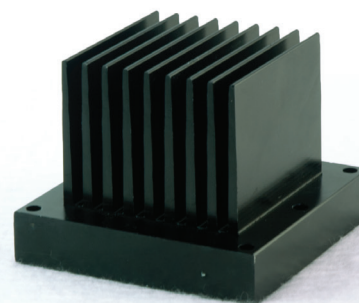
## OSLON® Square LED PowerCluster Heatsink Options

IHS has a series of Aluminium Alloy Heatsinks to be used with our standard range of Strips, PowerClusters 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.

IHS Product		No Heat Sink, 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	Yellow	Green	Green	Green	Green	Green	Green
	700mA	Yellow	Green	Green	Green	Green	Green	Green
	1000mA	Red	Green	Green	Green	Green	Green	Green
OSLON 4 PowerStars	350mA	Yellow	Green	Green	Green	Green	Green	Green
	700mA	Red	Yellow	Yellow	Yellow	Green	Green	Green
	1000mA	Red	Yellow	Yellow	Yellow	Green	Green	Green
OSLON 9 PowerStars	350mA	Red	Red	Red	Red	Green	Green	Green
	700mA	Red	Red	Red	Red	Yellow	Yellow	Yellow
	1000mA	Red	Red	Red	Red	Yellow	Yellow	Red
OSLON 16 PowerClusters	350mA	Red	Red	Red	Red	Yellow	Green	Green
	700mA	Red	Red	Red	Red	Yellow	Yellow	Red
	1000mA	Red	Red	Red	Red	Red	Red	Red

### KEY

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



## OSLON® Square PowerCluster Power Supply Options

IHS has a comprehensive range of standard Power Supplies. The table below shows forward voltage of each LED driver please consult the product options table to find the forward voltage of the PowerCluster used.

Additional Power Supplies are being introduced so please call us or check our website for the latest offering.

IHS Driver Part No.	Rating	Current	Output Voltage of LED Driver	
IZC035-017F-0067A-SA	17W	350mA	6-48V	
IZC035-018T-9500A-SX	18W	350mA	15-52V	
IZC070-035F-0067C-SA	35W	700mA	9-48V	
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	
IZC070-050A-9267C-SA	50W	700mA	24-72V	
IZC050-060F-9067C-QA	50W	500mA	40-110V	
OT-FIT-40/220-240/1A0-LT2-LP	40W	500-1050mA	15-50V	
OTE-18/220-240/350-PC	18W	350mA	27-54V	
OTE-35/220-240/700-PC	35W	700mA	27-50V	
OTi-DALI-15/220-240/1A0-LT2	15W	150-1050mA	7.5-54V	
OT-FIT-75/220-240/1A4-NFC-L	75W	600-1400mA	20-51V	
OT-FIT-150/220...240/1A0-D-NFC-IND-L	150W	250-1000mA	64-300V	

## Thermal Interface Material Options

IHS 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.

IHS offer our TIM in three options – double sided adhesive, single sided adhesive and non adhesive.

Product	Non Adhesive	Single Sided Adhesive	Double Sided Adhesive
30x30mm Cluster	ILA-TIM-CLUSTER-30x30-0A	ILA-TIM-CLUSTER-30x30-1A	ILA-TIM-CLUSTER-30x30-2A.

Other sizes are available, including customised parts

## Assembly Information

- The mounting of the OSOLON® Square PowerCluster 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 OSOLON® Square PowerCluster.
- The OSOLON® Square PowerClusters, 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.

# www.i-hled.co.uk

## For further information please contact IHS

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