

# IR Compact Eco 1

## ILE-IC01-XXXX-SC201. Series

### Product Overview

At the heart of the IR Compact® Eco 1 is an OSRAM Opto Semiconductors OSLOM Compact infrared light-emitting diode. The infrared light emitting diode has an emission angle of  $\pm 65^\circ$  and does not need internal optics or reflectors. Eco 1s are compact, powerful LED light sources built on FR4 with thermal vias for optimal thermal management. With long lifetimes also at high currents and superior corrosion resistance. Duris® Eco 1s generate very little heat and therefore do not require any secondary Heat Sinking.



### Applications

- Infrared illumination for cameras
- Surveillance systems
- Machine vision systems
- Gesture recognition systems
- Eye tracking systems

### Technical Features

- IR Compact Eco 1s contain an Oslon Compact IR with emission angle  $\pm 65^\circ$
- More than 50,000 hour lifetime to 70% of original brightness
- Mounting holes using M3 screws allows easy installation
- Size (L x W x H): 20.25x13.70x2.35mm
- IR Compact Eco 1s can be linked together to produce longer chains
- Forward current 500mA
- Can be pulsed at 1 Amp
- Matching Power Supply available - check options in Power Supply section

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

## Important Information and Precautions

- The OSOLON Compact® Eco1's LED, when powered up, is very bright. Thus it is advised that you do not look directly at it. Turn the Eco1 away from you and do not shine into the eyes of others.
- Do not operate OSOLON Compact® Eco1's with a Power Supply with unlimited current. Connection to constant voltage Power Supplies that are not current limited may cause the Eco1 to consume current above the specified maximum and cause failure or irreparable damage.
- The Eco1 board is a DOUBLE sided board for ease of connections, please ensure that one side is insulated to avoid shorting.
- 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 nm	Radiant intensity IF = 500mA , tp = 10 ms	Forward Voltage IF = 500mA, tp = 100 μs		Radiance Angle (half power)	Relevant OSRAM IR Data Sheet
ILH-IC01-85NN-SC201.	850nm	1030mW	2.9 volts	3.5 volts	± 75 °	SFH4710

\* 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%

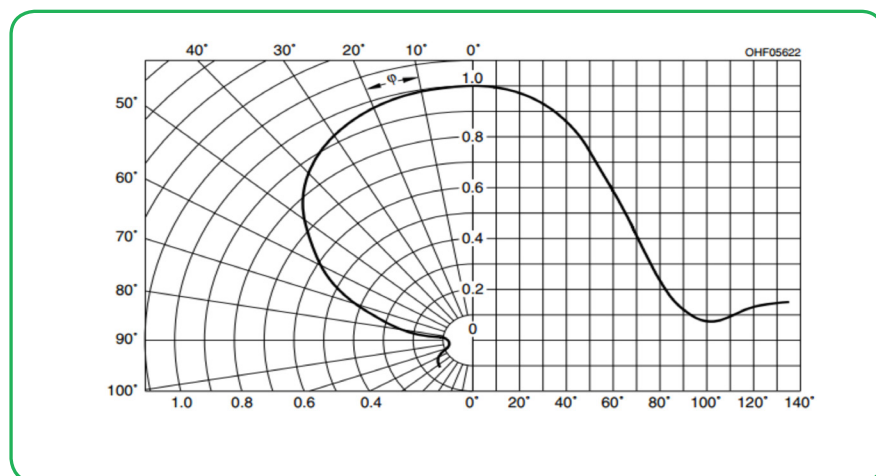
† Measured with 20mS 350mA pulse at 25 °c

## Minimum and Maximum Ratings

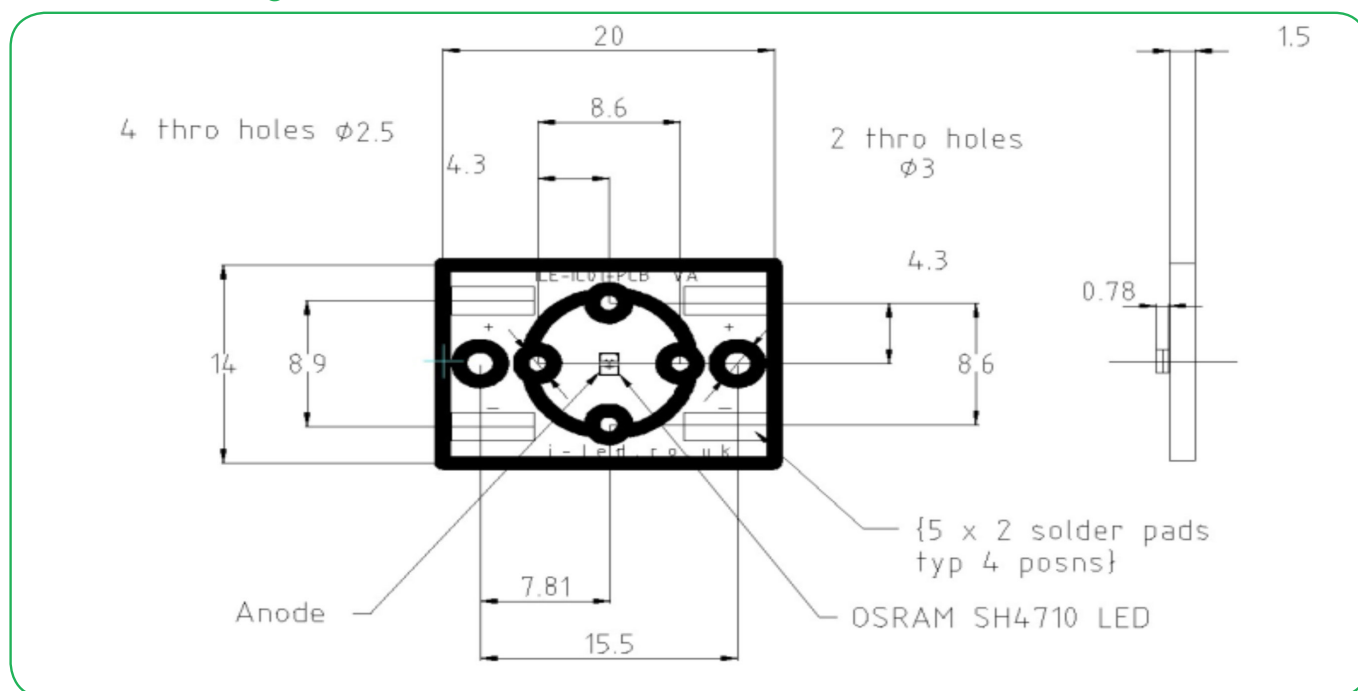
ILS Part Number	Operating Temperature at Tc-Point [°C] *	Storage Temperature [°C] *	Maximum Current per chip [mA] *	Surge Current per chip [mA] *	Reverse Voltage [Vdc] *
ILH-IC01-85NN-SC201.	70°C	-40°C to + 125°C	500mA	1000mA	not designed for reverse operation

\* 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)



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

IR Compact Eco 1 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.



Currently there are not any recommend Lens options from LEDIL for the OSOLON Compact®, however physical locator pins for a number of Ledil product families are on the board. In-house Lux testing with a number of these has shown minimal losses. Due to the nature of the device, colour over beam consistency may be an issue for some applications. Beam angle information is not currently available.

ILS Part Number	OSOLON IR (Beam Angle FWHM)	Mounting Type
LELIA-XX	Measurement data available shortly	Pin,Glue,Tape
EMILY-XX	Measurement data available shortly	Pin,Tape
FLARE MINI-XX	Measurement data available shortly	Glue & Pin,Glue,Tape
HEIDI-XX	Measurement data available shortly	Pin, Tape
TINA-XX	Measurement data available shortly	Pin,Tape & Glue
TINA2-XX	Measurement data available shortly	Pin,Tape & Glue
TINA3-XX	Measurement data available shortly	Pin,Tape
LISA2-XX	Measurement data available shortly	Clips, Glue & Pin, Glue
LAURA-XX	Measurement data available shortly	Pin,Tape
JULIA-X	Measurement data available shortly	Clips, Glue & Pin, Glue
LARISSA	Measurement data available shortly	Clips, Glue & Pin, Glue

## IR Compact Eco1 Heat Sink Options

ILS has recently introduced a series of Aluminium Alloy Heat Sinks to be used with our standard range of PowerStars and PowerClusters. These Heat Sinks 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, Red, Silver and Blue colour variants. More versions will be introduced over the coming months and we are also happy to manufacture custom Heat Sinks to your request.

This product would normally not require Heat Sinks as heat generated is normally minimal.

## 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.

As the Eco1 generates little heat, TIM is therefore not needed. Our double sided thermal tape would be suitable for fixing the Eco1 to a fixture, Heat Sink and flat substrate.

Product	Non Adhesive	Single Sided Adhesive	Double Sided Adhesive
OSLON Compact IR@Eco1	N/A	N/A	ILA-TIM-ECO1-2A

Other sizes are available, including customised parts

## Assembly Information

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 Duris® P5 Eco1.
- The OSLON Compact® OR Eco1, 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 z 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.