Synios S2222 Eco1 Boards

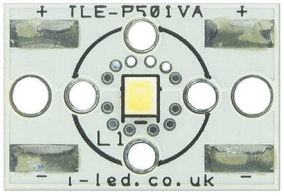
ILE-S201-xxxx-SC211.

Product Overview

At the heart of each Eco1 Board is an SYNIOS S2222 LED. SYNIOS S2222 product family provides an efficient and flexible platform for a variety of low- and mid-power applications (from 10 mA to 200 mA). Customers can choose from six colours, in addition to white versions (3000 - 6500K, CRI >80). The low package height of only 0.6mm makes extremely flat lighting solutions possible. Eco1's 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. SYNIOS S2222 Eco1's generate very little heat and therefore do not require secondary heatsinking.

Applications

- Truck Positioning Lighting
- Supplementary Brake lights
- VMS Lighting
- Architainment Lighting
- Cabin Lighting
- Aircraft Lighting



Technical Features

- SYNIOS S2222 1 Eco1 Boards contain SYNIOS S2222 LED with an integral 120 degree resin lens
- Up to 100,000 Hour lifetime to 70% of original brightness
- Mounting holes using M3 screws allows easy installation
- Secondary Lens can be fitted – check options in Lens and Reflector section
- Matching Power Supply available – check options in Power Supply section
- Suitable Thermal Interface Material available – check options in Thermal Interface Material section
- Size (L x W x H): 20.25 x 13.70 x 3.05mm
- Eco1 Boards can be linked together to produce longer chains
- Current range to 10-200 mA

*This datasheet should be read in conjunction with the relevant OSRAM data for the LED used

DATASHEET

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Important Information and Precautions

- Eco1 Boards, when powered up, are very bright. Thus it is advised that you do not look directly at them. Turn the Eco1 Board product away from you and do not shine into the eyes of others.
- Eco1 products will overheat in operation if not attached to a suitable Heatsink. Overheating can cause failure or irreparable damage.
- Do not operate Eco1 products with a power supply with unlimited current. Connection to constant voltage power supplies that are not current limited may cause the Eco1 product to consume current above the specified maximum and cause failure or irreparable damage.
- Eco1 products, when operated, can reach high temperatures thus there is a 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 Whites

ILS Part Number	Colour	Colour Temp * (Degrees Kelvin)	Typical Wattage at 140mA §	Forward Voltage	Luminous Flux † at 140mA	Radiance Angle	Relevant OSRAM LED Data
ILE-S201-WMWH-SC221.	Warm White	3000K	0.44W	2.6V to 3.4V	45lm	120° (+/- 60°)	KW DDLM31.EH
ILE-S201-QZWH-SC221.	Quartz White	3500K	0.44W	2.6V to 3.4V	45lm	120° (+/- 60°)	KW DDLM31.EH
ILE-S201-NUWH-SC221.	Neutral White	4000K	0.44W	2.6V to 3.4V	45lm	120° (+/- 60°)	KW DDLM31.EH
ILE-S201-WHWH-SC221.	White	5000K	0.44W	2.6V to 3.4V	45lm	120° (+/- 60°)	KW DDLM31.EH
ILE-S201-STWH-SC221.	Street White	5700K	0.44W	2.6V to 3.4V	45lm	120° (+/- 60°)	KW DDLM31.EH
ILE-S201-ULWH-SC221.	Ultra White	6500K	0.44W	2.6V to 3.4V	45lm	120° (+/- 60°)	KW DDLM31.EH

*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 140mA pulse at 25˚C

Product Options Colours

ILS Part Number	Colour	Dominant Wavelength	Typical Wattage at 140mA §	Forward Voltage	Luminous Flux † at 140mA	Radiance Angle	Relevant OSRAM LED Data
ILE-S201-BLUE-SC221.	Blue	450nm	0.44W	2.8V to 3.4V	5000lm	120° (+/- 60°)	KB DDLM31.13
ILE-S201-TRGR-SC221.	True Green	528nm	0.44W	2.6V to 3.4V	31.5lm	120° (+/- 60°)	KT DDLM31.13
ILE-S201-YELL-SC221.	Yellow	590nm	0.44W	1.7V to 2.7V	15.9lm	120° (+/- 60°)	KY DDLM31.23
ILE-S201-CNYL-SC221.	Converted Yellow	Cx = 0.57, Cy = 0.42	0.44W	2.6V to 3.4V	40lm	120° (+/- 60°)	KY DDLM31.FY
ILE-S201-RED1-SC221.	Red	616nm	0.44W	1.7V to2.7V	18lm	120° (+/- 60°)	KR DDLM31.23
ILE-S201-SURE-SC221.	Super Red	632nm	0.44W	1.7V to 2.7V	10lm	120° (+/- 60°)	KS DDLM31.23

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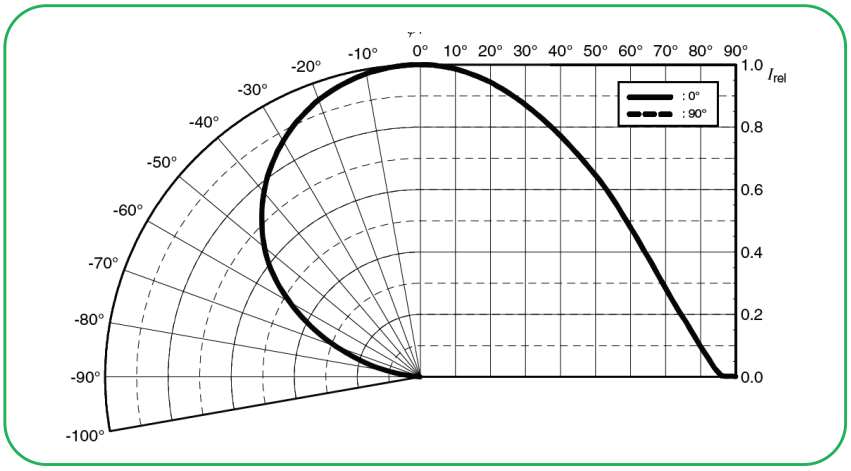
Minimum and Maximum Ratings

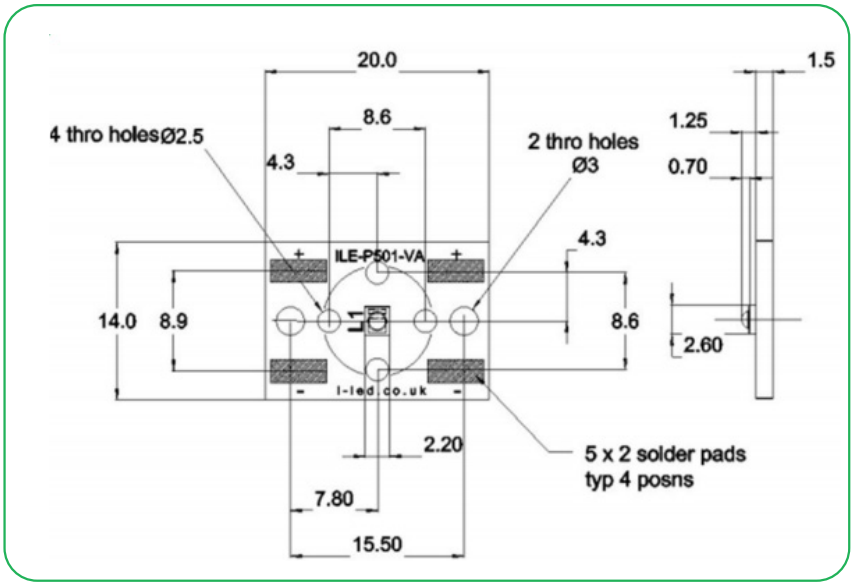
ILS Part Number	Operating Temperature	Storage Temperature	Forward Current per chip	Reverse Voltage
ILE-S201-xxxx-SC221.	-40 ...110 (°C)	-40 ... 110 (°C)	10mA ...200mA	Refer to LED Datasheet

* 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 is likely to 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 a single LED



Technical Drawing (mm)



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

SYNIOS S2222 Eco1 Board 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 lenses for the Synios S2222.

SYNIOS S2222 Eco1 Board Heatsink Options

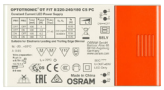
ILS has a series of Aluminium Alloy Heatsinks to be used with our standard range of PowerStars, PowerClusters and PowerLinear Engines. These Heatsinks are supplied with fixing screws for the light engine and for fixing to a base plate. They also come with Thermal Interface Material (TIM) attached to the top surface. ILS is continually expanding its Heatsink range and we are equally happy to manufacture custom Heatsinks upon your request.

This product would not normally require a Heatsinks as heat generated will typically be minimal.

SYNIOS S2222 Eco1 Board 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	Output Volts	
ELEMENT 6/220...240/150 S	6W	150mA	30-42V	
OT FIT 15/220-240/350 NFC	15W	150-350mA	18-40V	
OT FIT 8/220...240/180 CS S MINI	8W	90/120/150/150mA	30-42V	
OT FIT 8/220...240/180 CS PC	8W	100/120/155/180mA	27-40V	
OT FIT 8/220...240/180 CS PC SC	8W	100/120/155/180mA	27-40V	
OTi DALI 10/220...240/700 NFC	10W	150-700mA	2.5-45V	
ILA-1CH-LED-TESTER-USB-01.	1.75W	50-350mA	2-5V	
ILA-1CH-LED-TESTER-PREC-01.	15W	10-700mA	2-24V	

SYNIOS S2222 Eco1 Board Thermal Interface Material Options

ILS has 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.

Product	Non Adhesive	Single Sided Adhesive	Double Sided Adhesive
SYNIOS S2222	N/A	N/A	ILA-TIM-ECO1-2A.

Other sizes are available, including customised parts.

Assembly Information

- The mounting of the Eco1 Board 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 Eco1 Board.
- The Eco1 Board, as manufactured, has no conformal coating and therefore offers 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-led.co.uk

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.

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