DURIS® E5050 RGBW Eco1

ILE-D501-RGBxx-SC221.

At the heart of each Eco1 is a DURIS® E5050 ThinGan LED. DURIS® E5050 can be driven up to 180mA while OSRAMs latest power chip technology remains efficient even at the highest drive currents. The DURIS® E5050 is OSRAMs first 4 in 1 RGBW package for general lighting applications. Each channel can be individually controlled allowing users to select a wide range of colours. Eco1s 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 corrosions resistance. Duris® Eco1s generate very little heat and therefore do not require any secondary heatsinking.

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TECHNICAL FEATURES

LED Family	DURIS® E5050
Lifetime	Up to 100,000 hours lifetime to 70% of original brightness
Mounting	Mounting holes using M3 screws allow easy installation
Dimensions (L x W x H)	20 x 14 x 2.7mm
Wiring	Available with 200mm connecting wires
Secondary Optics	Currently there are no lens or reflector options for the DURIS® E5050 Eco1 range of products
Heatsinks	This product would normally not require heatsinks as heat generated is normally minimal
Power Supply	4 - 75W dimming and non dimming. Suitable options on page 7 or visit our website for a full range
Chain	Eco1s can be linked together to produce longer chains
Current Range	10 to 180mA
Thermal Resistance	Red Chip 26K/W Green Chip 41K/W Blue Chip 27K/W White Chip 32K/W

PRODUCT OPTIONS

ILS Part Number	Colour	Colour Temp/ Dominant Wavelength	Typical Power W § at 100mA	Forward Voltage	Flux † at 100mA	Radiance Angle	Relevant OSRAM LED Data
ILE-D501-RGBWM-SC221. (RGB+ Warm White)	Red	623nm	0.21W	2-2.7V	4500mcd	120° (±60°)	GW J9LHS1.4M-30A
	Green	530nm	0.3W	2.7-3.8V	8500mcd	120° (±60°)	GW J9LHS1.4M-30A
	Blue	465nm	0.31W	2.7-3.8V	2500mcd	120° (±60°)	GW J9LHS1.4M-30A
	Warm White	3000K	0.3W	2.7-3.8V	8500mcd	120° (±60°)	GW J9LHS1.4M-30A
ILE-D501-RGBNW-SC221. (RGB+Neutral White)	Red	623nm	0.21W	2-2.7V	4500mcd	120° (±60°)	GW J9LHS1.4M-40A
	Green	530nm	0.3W	2.7-3.8V	8500mcd	120° (±60°)	GW J9LHS1.4M-40A
	Blue	465nm	0.31W	2.7-3.8V	2500mcd	120° (±60°)	GW J9LHS1.4M-40A
	Neutral White	4000K	0.3W	2.7-3.8V	8500mcd	120° (±60°)	GW J9LHS1.4M-40A
ILE-D501-RGBWH-SC221. (RGB+White)	Red	623nm	0.21W	2-2.7V	4500mcd	120° (±60°)	GW J9LHS1.4M-50A
	Green	530nm	0.3W	2.7-3.8V	8500mcd	120° (±60°)	GW J9LHS1.4M-50A
	Blue	465nm	0.31W	2.7-3.8V	2500mcd	120° (±60°)	GW J9LHS1.4M-50A
	White	5000K	0.3W	2.7-3.8V	8500mcd	120° (±60°)	GW J9LHS1.4M-50A
ILE-D501-RGBSW-SC221. (RGB+White)	Red	623nm	0.21W	2-2.7V	4500mcd	120° (±60°)	GW J9LHS1.4M-40A
	Green	530nm	0.3W	2.7-3.8V	8500mcd	120° (±60°)	GW J9LHS1.4M-40A
	Blue	465nm	0.31W	2.7-3.8V	2500mcd	120° (±60°)	GW J9LHS1.4M-40A
	Street White	5700K	0.3W	2.7-3.8V	8500mcd	120° (±60°)	GW J9LHS1.4M-40A

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 100mA pulse at 25˚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]
ILE-D501-RGBWM-SC221.	-40°C ~ 85°C	-40°C ~ 85°C	10-180mA	Not designed for reverse operation
ILE-D501-RGBNW-SC221.	-40°C ~ 85°C	-40°C ~ 85°C	10-180mA	Not designed for reverse operation
ILE-D501-RGBWH-SC221.	-40°C ~ 85°C	-40°C ~ 85°C	10-180mA	Not designed for reverse operation
ILE-D501-RGBSW-SC221.	-40°C ~ 85°C	-40°C ~ 85°C	10-180mA	Not designed for r everse operation

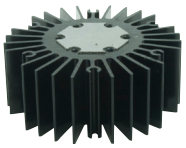
Exceeding maximum ratings for operating and storage temperature will reduce expected life time or destroy the LED module.
Exceeding maximum ratings for operating voltage will cause hazardous overload and will likely destroy the LED module.
The temperature of the LED module must be measured at the Tc-Point according to EN60598-1 in a thermally constant status with a temperature sensor or a temperature sensitive label.

ACCESSORIES

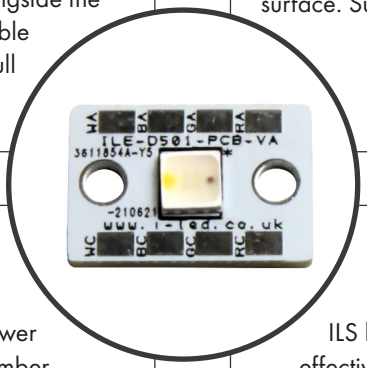
Lens and Reflectors

LEDiL precision-engineered lenses 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 are released alongside the latest products from our LED suppliers. Suitable options on page 6 or visit our website for a full range.

Heatsinks



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. Suitable options on page 6 or visit our website for a full range.



Power Supplies

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. Suitable options on page 7

Thermal Interface Material (TIM)

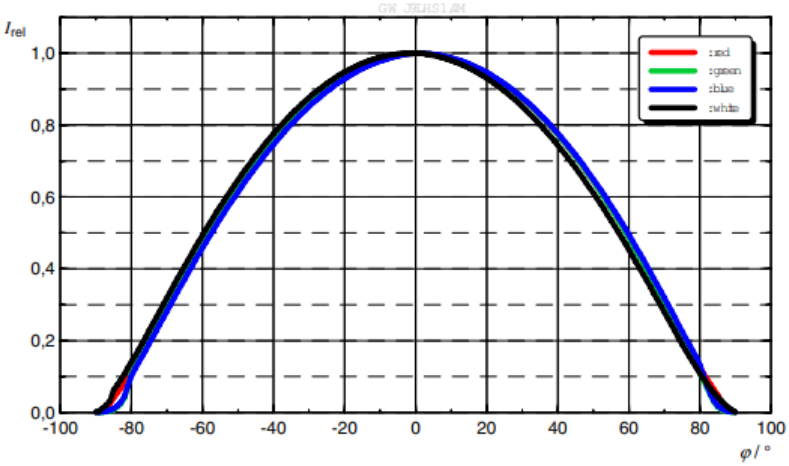
ILS has produced a range of high-performance, cost effective thermal interface materials to match perfectly their standard products. Our product fills the air pockets between the two surfaces, forming a continuous layer to conduct heat away from the LED to the heatsink. ILS offers TIM in three options – double sided adhesive, single sided adhesive and non adhesive. Suitable options on page 7 or visit our website for a full range.

TECHNICAL DRAWINGS (MM)

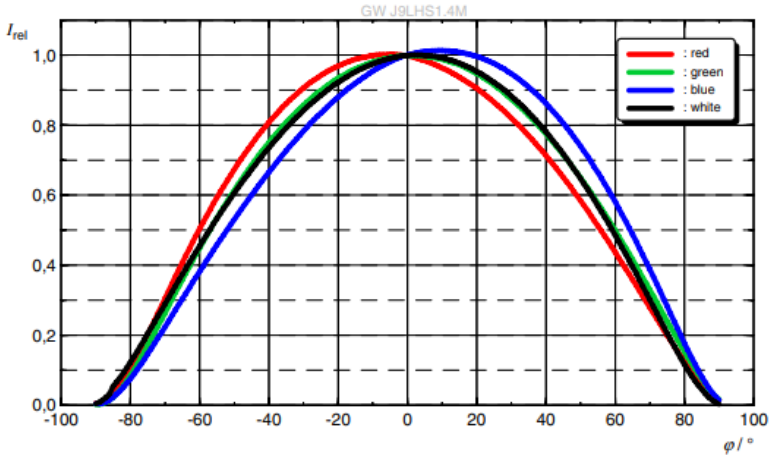
3D drawing files are available on request from ILS. Please call or email.

RADIATION OF SINGLE LED

Horizontal



Vertical



LENS AND REFLECTOR OPTIONS

Currently there are no lens or reflector options for the DURIS® E5050 Eco1 range of products

Click here to visit our website for our latest range

HEATSINK OPTIONS

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

Click here to visit our website for our latest range

POWER SUPPLY OPTIONS

	ILS Driver Part Number	Rating	Current	LED Driver Voltage	Dimming
	ILA-4CHANNEL-LED-TUNER-001.	23W	10-700mA	2-24V	Current Control
	ILA-1CH-LED-TESTER-USB-01.	1.5W	50-350mA	<5V	No
	ILA-1CH-LED-TESTER-PREC-01	16.8W	10-700mA	<24V	Current control
	OTI-DALI-10/220-240/700-NFC	10W	150-700mA	2.5-45VV	DALI

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THERMAL INTERFACE MATERIAL OPTIONS

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, heatsink and flat substrate.

Non Adhesive	Single Sided Adhesive	Double Sided Adhesive
N/A	N/A	ILA-TIM-ECO1-2A

Other sizes are available, including customised parts

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IMPORTANT INFORMATION AND PRECAUTIONS

The Eco1, when powered up, is 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.

Eco1s, when operated, can reach high temperatures thus there is risk of injury if they are touched.

Eco1s will overheat in operation if not attached to a suitable Heatsink. Overheating can cause failure or irreparable damage.

DO NOT HOT PLUG ON LED SIDE OF POWER SUPPLY.

Do not operate Eco1 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.

DO NOT TOUCH or PUSH on the LED as this can cause irreparable damage.

SAFETY INFORMATION

The Eco 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.

The 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, 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 datasheet 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.

FURTHER INFORMATION

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

If you require further assistance or have a specific or custom enquiries, please contact the ILS team via email or phone. Alternatively please visit our website for more product info and to see our full ranges.

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ABOUT ILS

ILS offers a high level of technical skill, professionalism and commercial understanding to companies requiring market-leading optoelectronics solutions. Offering conceptual advice, electronics design and manufacturing capability, we use high quality production resources both in-house and in Asia, providing project support from prototyping to mass production. We also understand the need to provide cost effective solutions and we do so using high quality components to ensure that the end product's reliability and quality is uncompromised. Apart from LEDs in the visible spectrum, we have a wide range of Infrared, UV LEDs, UV tubes, and lasers.

ILS is a division of Intelligent Group Solutions Ltd (IGS) a well-established respected industry leading Optoelectronics solutions provider. Much of IGS' business comes from providing semi-custom or custom products both in component and sub-assembly form. This comes from providing design support and prototyping within the European market place. With the capability to deliver production displays to wherever in the world that the customer's manufacturing or assembly is being undertaken.

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