

# Duris S family of SCOBs – LES 19

ILO-03FFx-19xx-xC211.

**SCOB - a series of PCBA's utilising Osram DURIS S family LEDs to create COB equivalent lighting sub-assemblies**

## Product Overview

The SCOB range of products from ILS, utilise the very latest multi-chip devices from Osram Opto Semiconductor – The Duris S5, S8 and S10.

These new LEDs enable a very flexible, powerful light source design, allowing simple optics design and flexibility to fit various accessories.

The combination of small light-emitting surface and high lumen package provides excellent optical control and very narrow angle design.

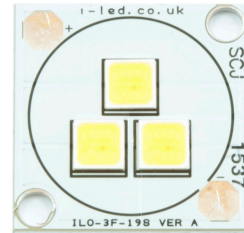
The SCOB family are based on the industry standard Zhaga footprints, enabling the device to utilise all the existing industry standard connectors, reflectors and heat sinks.

Utilising these very latest chip designs, SCOBs offer an unparalleled range of colour temperatures, CRI options, forward voltage and drive current configurations.

SCOBs are compact, powerful LED light sources built on aluminium substrates for optimal thermal management.

With this unique approach to SCOB design we are also able to offer mixed colour temperatures and single colour versions of our SCOB family.

The ILO-03FFx-19xx-xC211. family of products is available as 3 Osram Duris S8's all in series, enabling us to offer 5 voltage groups and 2 CRI groups, min 80 CRI and min 90 CRI.



## Applications

- Retrofit Bulbs
- Downlights
- Spotlights
- Residential
- Area & Parking Lot
- Landscape
- Building Exterior
- Roadway
- High Bay

## Technical Features

- Mounting using M3 screws or Zhaga connector
- Size (L x W x H) : 24.0×24.0×1.4 (mm)
- Optional 200mm connecting wires available.
- Suitable Heat Sinks available – check options in Heat Sink section
- Matching Power Supply available - check options in Power Supply section
- SCOBs can be linked together to produce longer chains

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

### Important Information and Precautions

- The SCOB, when powered up, is very powerful and can damage eyes. Thus it is advised that you do not look directly at it. Turn the SCOB away from you and do not shine into the eyes of others.
- SCOBs will overheat in operation if not attached to a suitable Heat Sink. Overheating can cause failure or irreparable damage.
- Do not operate SCOBs with a Power Supply with unlimited current. Connection to constant voltage Power Supplies that are not current limited may cause the SCOBs to consume current above the specified maximum and cause failure or irreparable damage.
- SCOBs when operated, can reach high temperatures thus there is risk of injury if they are touched.
- DO NOT TOUCH or PUSH on the LED as this can cause irreparable damage.
- DO NOT HOT PLUG ON LED SIDE OF POWER SUPPLY.

### Product Options

#### ILO-03FF1-19xx-EC211. Family of Products - 54V min 80 CRI

ILS PART NUMBER	CRI	CCT*	Forward Voltage	Current	Flux †	Typical Wattage§	Efficacy Lumens/Watt	Radiance Angle	Relevant OSRAM LED Data
ILO-03FF1-19HW-EC211.	min 80	2700K	54V	150mA	1257Lm	8.1W	155	+/- 60°	GWP9LM31. EM
ILO-03FF1-19WM-EC211.		3000K			1257Lm		155		
ILO-03FF1-19QW-EC211.		3500K			1257Lm		155		
ILO-03FF1-19NW-EC211.		4000K			1257Lm		155		
ILO-03FF1-19MW-EC211.		4500K			1350Lm		167		
ILO-03FF1-19WW-EC211.		5000K			1350Lm		167		
ILO-03FF1-19ST-EC211.		5700K			1350Lm		167		
ILO-03FF1-19UL-EC211.		6500K			1350Lm		167		

\* 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

#### ILO-03FF2-19xx-EC211. Family of Products - 18V min 80 CRI

ILS PART NUMBER	CRI	CCT*	Forward Voltage	Current	Flux †	Typical Wattage§	Efficacy Lumens/Watt	Radiance Angle	Relevant OSRAM LED Data
ILO-03FF2-19HW-EC211.	min 80	2700K	18V	600mA	1689Lm	10.8W	156	+/- 60°	GWP9LR32. EM
ILO-03FF2-19WM-EC211.		3000K			1689Lm		156		
ILO-03FF2-19QW-EC211.		3500K			1689Lm		156		
ILO-03FF2-19NW-EC211.		4000K			1830Lm		169		
ILO-03FF2-19MW-EC211.		4500K			1830Lm		169		
ILO-03FF2-19WW-EC211.		5000K			1830Lm		169		
ILO-03FF2-19ST-EC211.		5700K			1830Lm		169		
ILO-03FF2-19UL-EC211.		6500K			1830Lm		169		

\* 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

**ILO-03FF3-19xx-EC211. Family of Products - 75V min 80 CRI**

ILS PART NUMBER	CRI	CCT*	Forward Voltage	Current	Flux †	Typical Wattage§	Efficacy Lumens/Watt	Radiance Angle	Relevant OSRAM LED Data
ILO-03FF3-19HW-EC211.	min 80	2700K	75V	150mA	1689Lm	11.25W	150	+/- 60°	GWP9LR31. EM
ILO-03FF3-19WM-EC211.		3000K			1689Lm		150		
ILO-03FF3-19QW-EC211.		3500K			1689Lm		150		
ILO-03FF3-19NW-EC211.		4000K			1830Lm		163		
ILO-03FF3-19MW-EC211.		4500K			1830Lm		163		
ILO-03FF3-19WW-EC211.		5000K			1830Lm		163		
ILO-03FF3-19ST-EC211.		5700K			1830Lm		163		
ILO-03FF3-19UL-EC211.		6500K			1830Lm		163		

\* 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

**ILO-03FF4-19xx-EC211. Family of Products - 18V min 80 CRI**

ILS PART NUMBER	CRI	CCT*	Forward Voltage	Current	Flux †	Typical Wattage§	Efficacy Lumens/Watt	Radiance Angle	Relevant OSRAM LED Data
ILO-03FF4-19HW-EC211.	min 80	2700K	18V	750mA	1974Lm	13.5W	146	+/- 60°	GWP9LT32. EM
ILO-03FF4-19WM-EC211.		3000K			1974Lm		146		
ILO-03FF4-19QW-EC211.		3500K			1974Lm		146		
ILO-03FF4-19NW-EC211.		4000K			2130Lm		158		
ILO-03FF4-19MW-EC211.		4500K			2130Lm		158		
ILO-03FF4-19WW-EC211.		5000K			2130Lm		158		
ILO-03FF4-19ST-EC211.		5700K			2130Lm		158		
ILO-03FF4-19UL-EC211.		6500K			2130Lm		158		

\* 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

**ILO-03FF5-19xx-EC211. Family of Products - 93V min 80 CRI**

ILS PART NUMBER	CRI	CCT*	Forward Voltage	Current	Flux †	Typical Wattage§	Efficacy Lumens/Watt	Radiance Angle	Relevant OSRAM LED Data
ILO-03FF5-19HW-EC211.	min 80	2700K	93V	150mA	1974Lm	13.95W	142	+/- 60°	GWP9LT31. EM
ILO-03FF5-19WM-EC211.		3000K			1974Lm		142		
ILO-03FF5-19QW-EC211.		3500K			1974Lm		142		
ILO-03FF5-19NW-EC211.		4000K			2130Lm		153		
ILO-03FF5-19MW-EC211.		4500K			2130Lm		153		
ILO-03FF5-19WW-EC211.		5000K			2130Lm		153		
ILO-03FF5-19ST-EC211.		5700K			2130Lm		153		
ILO-03FF5-19UL-EC211.		6500K			2130Lm		153		

\* 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



**ILO-03FF3-19xx-CC211. Family of Products - 75V min 90 CRI**

ILS PART NUMBER	CRI	CCT*	Forward Voltage	Current	Flux †	Typical Wattage§	Efficacy Lumens/Watt	Radiance Angle	Relevant OSRAM LED Data
ILO-03FF3-19HW-CC211.	min 90	2700K	75V	150mA	1350Lm	11.25W	120	+/- 60°	GWP9LR33. CM
ILO-03FF3-19WM-CC211.		3000K			1350Lm		120		
ILO-03FF3-19QW-CC211.		3500K			1350Lm		120		
ILO-03FF3-19NW-CC211.		4000K			1350Lm		120		

\* 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

**ILO-03FF5-19xx-CC211. Family of Products - 93V min 90 CRI**

ILS PART NUMBER	CRI	CCT*	Forward Voltage	Current	Flux †	Typical Wattage§	Efficacy Lumens/Watt	Radiance Angle	Relevant OSRAM LED Data
ILO-03FF5-19HW-CC211.	min 90	2700K	93V	150mA	1560Lm	13.95W	112	+/- 60°	GWP9LT31. CM
ILO-03FF5-19WM-CC211.		3000K			1560Lm		112		
ILO-03FF5-19QW-CC211.		3500K			1560Lm		112		
ILO-03FF5-19NW-CC211.		4000K			1689Lm		121		

\* 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**

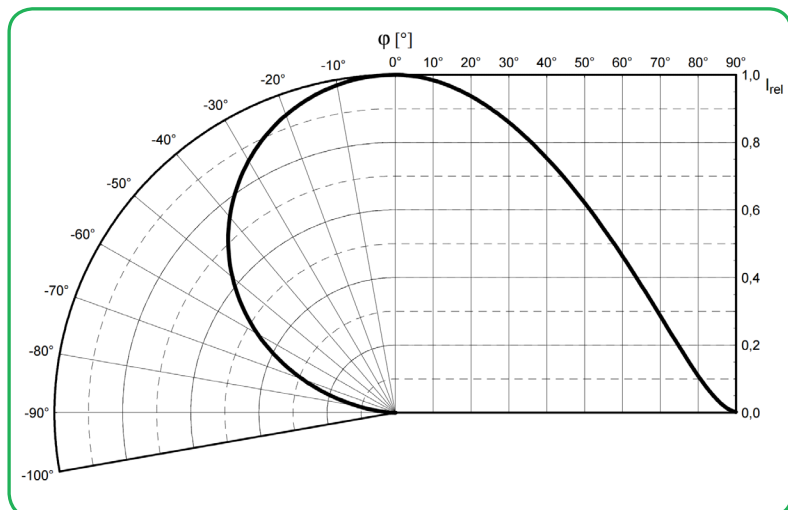
ILS PART NUMBER	Operating Temperature at Tc-Point [°C]*	Storage Temperature [°C]*	Forward Current per chip [mA]*	Reverse Voltage [Vdc]*
ILO-03FFx-19xx-xC211.	85	-40 to +125	400mA	1.2V

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

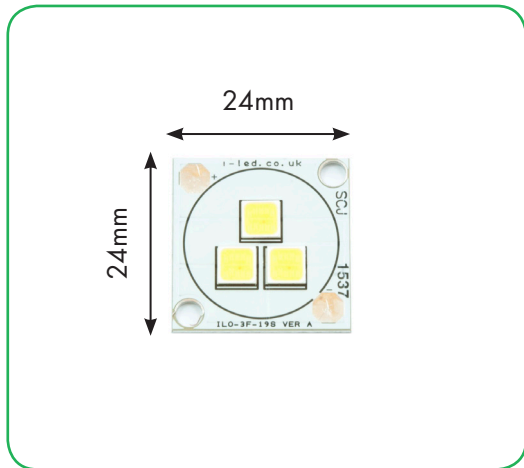
Exceeding maximum ratings for operating voltage will cause hazardous overload and will likely destroy the LED module.

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.

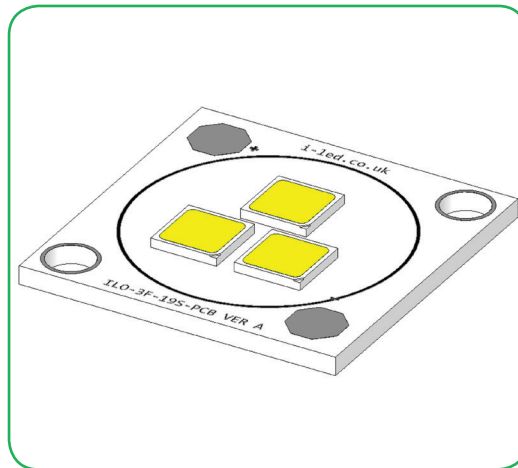
**Radiation of Single LED**



**Technical Drawing**



**3D Drawing**



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

**Sockets and Connectors**

The ILS SCOBs are designed to meet the Zhaga standards, and as such will work with any relevant Zhaga compliant connectors or sockets.

Below is a selection of products that will work with the ILO-03FFx-19xx-xC211. family of products;

Connector: 462 Typ L3

Manufacturer: Bender Wirth

Connector: 2213407-2 + OPTIC CLIP Z50 TYPE1: 2213194-1

Manufacturer: TE

Connector: 47.319.2170

Manufacturer: BJB

Connector:

Manufacturer: A.A.G. STUCCH



**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.



Ordering Code	Type	Beam	Diameter	Height	Family	FWHM	Material /Lens	Material /Holder	Material /Reflector	Colour
F13379_ANGELA-S	Reflector	S	119.5	74.27	ANGELA	10			PC	metal
F13380_ANGELA-M	Reflector	M	119.5	74.5	ANGELA	17			PC	metal
F13381_ANGELA-W	Reflector	W	119.5	74.5	ANGELA	35			PC	metal
F13662_ANGELA-S-B	Reflector	S	119.5	74.5	ANGELA	11			PC	metal
F13663_ANGELA-M-B	Reflector	M	119.5	74.5	ANGELA	18			PC	metal
F13663_ANGELA-M-B	Reflector	M	119.5	74.5	ANGELA	17			PC	metal
F13664_ANGELA-W-B	Reflector	W	119.5	74.5	ANGELA	35			PC	metal
FCN13697_ANGELA-S	RefPack	S	119.5	79.31	ANGELA	11		PC	PC	metal
FCN13698_ANGELA-M	RefPack	M	119.5	79.31	ANGELA	17		PC	PC	metal
FCN13704_ANGELA-W	RefPack	W	119.5	79.31	ANGELA	35		PC	PC	metal
F13840_ANGELA-XW	Reflector	W	119.5	74.5	ANGELA	72			HRPC	white
F13841_ANGELA-XW-B	Reflector	W	119.5	74.5	ANGELA	72			HRPC	white
F13841_ANGELA-XW-B	Reflector	W	119.5	74.5	ANGELA	72			HRPC	white
FCN14691_ANGELA-XW	Reflector	W	119.5		ANGELA	71			HRPC	white
F14532_ANGELETTE-S	Reflector	Asymmetric	110	57.3	Angelette	14			PC	metal
F14533_ANGELETTE-M	Reflector	M	110	57.3	Angelette	46			PC	metal
F14534_ANGELETTE-WW	Reflector	WW	110	57.3	Angelette	63			PC	metal
F14619_ANGELETTE-S-PLAIN	Reflector	Asymmetric	110	57.3	Angelette	14			PC	metal
F14620_ANGELETTE-M-PLAIN	Reflector	M	110	57.3	Angelette	46			PC	metal



Ordering Code	Type	Beam	Diameter	Height	Family	FWHM	Material /Lens	Material /Holder	Material /Reflector	Colour
F14622_ ANGELETTE-WW-PLAIN	Reflector	WW	110	57.3	Angelette	63			PC	metal
C14346_ ANGELETTE-WAS	Reflector	Asymmetric	97.2 x 83.4	84.1	Angelette	Asymmetric			PC	metal
CN14421_ ANGELETTE-WAS	Pack	Asymmetric	97.2 x 83.4		Angelette	asymmetric		PC	PC	metal
FCN13912_ ANGELINA-XW	RefPack				ANGELINA	90		PC	HRPC	white
F13325_ ANGELINA-S	Reflector	S	82	31	ANGELINA	22			PC	metal
F13401_ ANGELINA-M	Reflector	M	82	31	ANGELINA	37			PC	metal
F13402_ ANGELINA-W	Reflector	W	82	31	ANGELINA	49			PC	metal
F13659_ ANGELINA-S-B	Reflector	S	82	31	ANGELINA	23			PC	metal
F13659_ ANGELINA-S-B	Reflector	S	82	31	ANGELINA	23			PC	metal
F13660_ ANGELINA-M-B	Reflector	M	82	31	ANGELINA	41			PC	metal
F13660_ ANGELINA-M-B	Reflector	M	82	31	ANGELINA	41			PC	metal
F13661_ ANGELINA-W-B	Reflector	W	82	31	ANGELINA	55			PC	metal
F13661_ ANGELINA-W-B	Reflector	W	82	31	ANGELINA	55			PC	metal
FCN13691_ ANGELINA-S	RefPack	S	82	36.04	ANGELINA	23		PC	PC	metal
FCN13692_ ANGELINA-M	RefPack	M	82	36.04	ANGELINA	35		PC	PC	metal
FCN13693_ ANGELINA-W	RefPack	W	82	36	ANGELINA	48		PC	PC	metal
F13838_ ANGELINA-XW	Reflector	W	82	31	ANGELINA	91			HRPC	white
F13839_ ANGELINA-XW-B	Reflector	W	82	31	ANGELINA	93			HRPC	white
F13839_ ANGELINA-XW-B	Reflector	W	82	31	ANGELINA	92			HRPC	white
FC13973_ ANGELINA-RZ-S	RefPack	S	82	31	ANGELINA	27	PC		PC	metal
CN14061_ LENA-M	RefPack	M	111	84.4	Lena	23		PC		metal
CN14063_ LENA-WAS	Pack	Asymmetric	111	37.01	Lena	asymmetric		PC		metal
CN14064_ LENA-SS	RefPack	SS	111	84.4	Lena	15		PC		metal
CN14065_ LENA-S-DL	RefPack	S	111	86	Lena	15		PC		metal

Ordering Code	Type	Beam	Diameter	Height	Family	FWHM	Material /Lens	Material /Holder	Material /Reflector	Colour
CN14066_LENA-M-DL	RefPack	M	111	86	Lena	24		PC		metal
CN14067_LENA-W-DL	RefPack	W	111	86	Lena	50		PC		metal
CN14078_LENA-WAS-DL	RefPack	Asymmetric	111	39.11	Lena	asymmetric		PC		metal
CN14079_LENA-X-WAS	RefPack	Asymmetric	111	37.01	Lena	asymmetric		PC		white
CN14080_LENA-X-WAS-DL	RefPack	Asymmetric	111	39.11	Lena	asymmetric		PC		white
CN14081_LENA-SS-DL	RefPack	SS	111	86	Lena	17		PC		metal
CN14093_LENINA-S	RefPack	S	74	44.4	Lenina	19		PC	PC	metal
CN14094_LENINA-M	RefPack	M	74	44.4	Lenina	32		PC	PC	metal
CN14095_LENINA-W	RefPack	W	74	44.4	Lenina	60		PC	PC	metal
CN14096_LENINA-XW	RefPack	WWW	74	44.4	Lenina	76		PC		metal
CN14097_LENINA-XW-DL	RefPack	WWW	74	46.15	Lenina	75		PC		metal
CN14098_LENINA-W-DL	RefPack	W	74	46.15	Lenina	60		PC	PC	metal
CN14099_LENINA-M-DL	RefPack	M	74	46.15	Lenina	34		PC	PC	metal
CN14100_LENINA-S-DL	RefPack	S	74	46.15	Lenina	20	PC	PC	PC	metal
FN13323_STELLA-A	Pack	Asymmetric	90	22	STELLA	Asymmetric	Silicone	PA66GF30		black
FN14074_STELLA-HB	Lens	HB	90	19.5	STELLA	84	Silicone	PA66GF30		black
FN14253_STELLA-A	Pack	Asymmetric	90	22	STELLA	Asymmetric	Silicone	PA66GF30		white
FN14645_STELLA-T4	Lens	Street	90	26.9	STELLA	asymmetric	Silicone	PA66GF30		black
FN15186_STELLA-HB	Lens	HB	90	19.5	STELLA	84	Silicone	PA66GF30		white
FN15187_STELLA-T4	Lens	Street	90	26.9	STELLA	asymmetric	Silicone	PA66GF30		white
CN14236_WINNIE-S	Assembly	S	49.8	19.3	Winnie	33	PMMA	PC		white
CN14237_WINNIE-M	Assembly	M	49.8	19.3	Winnie	55	PMMA	PC		white
CN14238_WINNIE-W	Assembly	W	49.8	19.3	Winnie	50	PMMA	PC		white
FP15073_ZORYA-SC-50	Assembly	Decorative	56	29.1	Zorya	0	Silicone	PC		clear

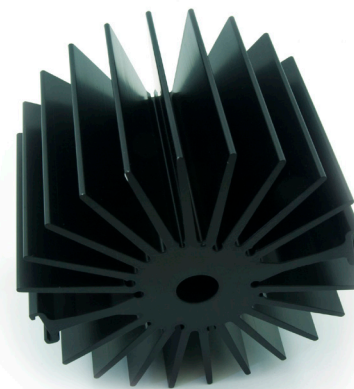
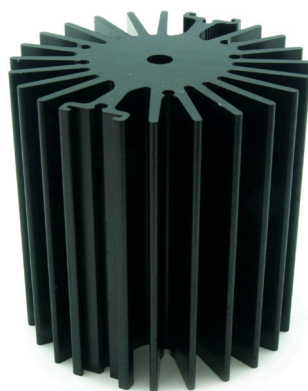
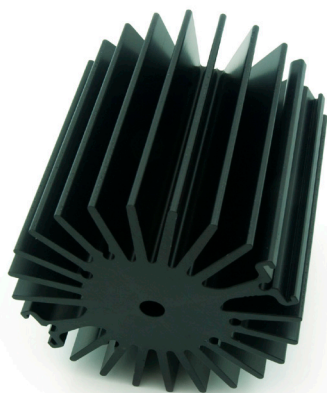
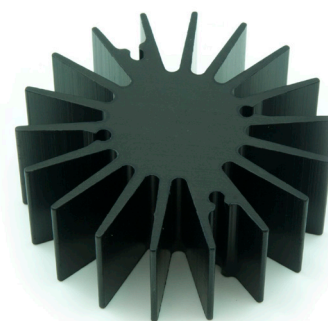


### Heat Sink Options

ILS has 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. More versions will be introduced over the coming months and we are happy to manufacture custom Heat Sinks to your request.

	Operates under the recommended ILS junction temperature
	Operates under the recommended LED maximum junction temperature
	Not suitable for use
N/A	Heat Sink not designed for use with this product

ILS Product	ILA-HSINK-RADL-55X20MM-BLK	ILA-HSINK-RADL-70X20MM-BLK	ILA-HSINK-RADL-70X70MM-BLK	ILA-HSINK-RADL-110X65MM-BLK	ILA-HSINK-RADL-110X80MM-BLK	ILA-HSINK-RADL-120X150MM-BLK
ILO-01TTx-09xx-xC211.						
ILO-01FFx-13xx-xC211.						
ILO-04FFx-13xx-xP211.						
ILO-05FFx-13xx-xP211.						
ILO-01TTx-13xx-xC211.						
ILO-03FFx-19xx-xC211.						
ILO-04FFx-19xx-xC211.						
ILO-04TTx-23xx-xP211.						
ILO-09FFx-23xx-xC211.						
ILO-05FFx-23xx-xC211.						
ILO-12FFx-23xx-xP211.						
ILO-16FFx-33xx-xP211						
ILO-26FFx-33xx-xP211.						



## Power Supply Options

ILS has a comprehensive range of standard power supplies. The table below shows a selection from our offering which are suited to the SCOB application.

### Constant Current Types

ILS Driver Part Number	Rating Watts	Output	IP Rating	Output Volts	PF	Dimming	
IZC015-005F-0067C-QA	5	150mA	IP67	20-33	0.6	NO	
IZC035-005F-0067C-QA	5	350mA	IP67	2-12	0.6	NO	
IZC070-005F-0067C-QA	5	700mA	IP67	2-5	0.6	NO	
IZC035-008F-5065C-SA	8	350mA	IP65	3-36	0.5	NO	
IZC070-008F-5065C-SA	8	700mA	IP65	3-12	0.5	NO	
IZCXXX-012T-8000-SA	12	350mA - 1050mA	IP20	2-27	0.8	YES	
IZC035-017F-0067A-SA	17	350mA	IP67	6-48	0.6	NO	
IZC035-018T-9500A-SX	18	350mA	IP20	15-52	1	Triac	
IZC050-018T-9500A-SX	18	500mA	IP20	9-36	1	Triac	
IZC070-018T-9500A-SX	18	700mA	IP20	6-26	1	Triac	
IZC035-035F-9067C-QA	35	350mA	IP67	40-50	0.9	NO	
IZC070-035F-0067C-SA	35	700mA	IP67	9-48	0.6	NO	
IZC105-035F-9067C-QA	35	1.05A	IP67	16-32	0.9	NO	

ILS Driver Part Number	Rating Watts	Output	IP Rating	Output Volts	PF	Dimming	
IZC045-040A-9266C-SA	40	450mA	IP66	30-89	0.9	0-10 v	
IZC105-040A-0067C-QA	40	1.05A	IP67	24-40	0	0-10 v	
IZC070-050A-9267C-SA	50	700mA	IP67	24-72	0.9	0-10 v	
IZC050-060F-9067C-QA	60	500mA	IP67	40-110	0.9	NO	
IZC105-060F-9067C-QA	60	1.05A	IP67	30-60	0.9	NO	
IZC140-060F-9067C-QA	60	1.4A	IP67	20-42	0.9	NO	
IZC070-075A-9267C-SA	75	700mA	IP67	54-108	0.9	0-10 v	
IZC140-075F-9067A-QAL	75	1400mA	IP67	30-53	0.9	NO	

## 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.

ILS offer our TIM in two options – Double Sided Adhesive and Single Sided Adhesive.

Product	Single Sided Adhesive	Double Sided Adhesive
<b>ILO-01TTx-09xx-xC211.</b>	ILA-TIM-LES09-1A	ILA-TIM-LES09-2A
<b>ILO-01FFx-13xx-xC211.</b>	ILA-TIM-LES13-1A	ILA-TIM-LES13-2A
<b>ILO-04FFx-13xx-xP211.</b>	ILA-TIM-LES13-1A	ILA-TIM-LES13-2A
<b>ILO-05FFx-13xx-xP211.</b>	ILA-TIM-LES13-1A	ILA-TIM-LES13-2A
<b>ILO-01TTx-13xx-xC211.</b>	ILA-TIM-LES13-1A	ILA-TIM-LES13-2A
<b>ILO-03FFx-19xx-xC211.</b>	ILA-TIM-LES19-1A	ILA-TIM-LES19-2A
<b>ILO-04FFx-19xx-xC211.</b>	ILA-TIM-LES19-1A	ILA-TIM-LES19-2A
<b>ILO-04TTx-23xx-xP211.</b>	ILA-TIM-LES23-1A	ILA-TIM-LES23-2A
<b>ILO-09FFx-23xx-xC211.</b>	ILA-TIM-LES23-1A	ILA-TIM-LES23-2A
<b>ILO-05FFx-23xx-xC211.</b>	ILA-TIM-LES23-1A	ILA-TIM-LES23-2A
<b>ILO-12FFx-23xx-xP211.</b>	ILA-TIM-LES23-1A	ILA-TIM-LES23-2A
<b>ILO-16FFx-33xx-xP211</b>	ILA-TIM-LES33-1A	ILA-TIM-LES33-2A
<b>ILO-26FFx-33xx-xP211.</b>	ILA-TIM-LES33-1A	ILA-TIM-LES33-2A

Other sizes are available, including customised parts

## Assembly Information

- The mounting of the SCOB has to be on a metal Heat Sink.
- 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 SCOB.
- The SCOB, 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 users 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.

## 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.