

Duris S family of SCOBs – LES 9

ILO-01TTx-09xx-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.

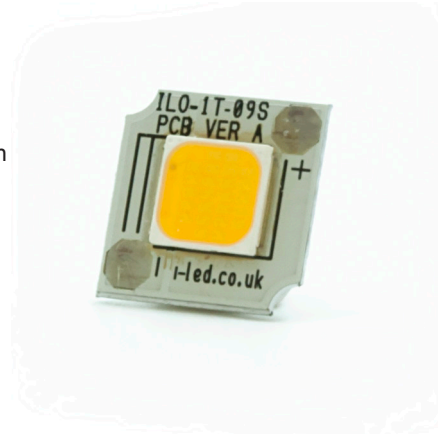
The combination of small light-emitting surface and high lumen package provides excellent optical control and very narrow angle design.

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.

The ILO-01TTx-09xx-xC211. family of products is available as a single Osram Duris S10, enabling us to offer 2 voltage groups in both 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) : 13.5×13.5×1.4 (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-01TT1-09xx-EC211. Family of Products - 28V min 80 CRI

ILS PART NUMBER	CRI	CCT*	Forward Voltage	Current	Flux †	Typical Wattage§	Efficacy Lumens/Watt	Radiance Angle	Relevant OSRAM LED Data
ILO-01TT1-09HW-EC211.	min 80	2700K	28V	350mA	1120Lm	9.8W	114	+/- 60°	GWP7LM32. EM
ILO-01TT1-09WM-EC211.		3000K			1210Lm		123		
ILO-01TT1-09QW-EC211.		3500K			1210Lm		123		
ILO-01TT1-09NW-EC211.		4000K			1210Lm		123		
ILO-01TT1-09MW-EC211.		4500K			1210Lm		123		
ILO-01TT1-09WW-EC211.		5000K			1300Lm		133		
ILO-01TT1-09ST-EC211.		5700K			1300Lm		133		
ILO-01TT1-09UL-EC211.		6500K			1300Lm		133		

* 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-01TT1-09xx-CC211. Family of Products - 28V min 90 CRI

ILS PART NUMBER	CRI	CCT*	Forward Voltage	Current	Flux †	Typical Wattage§	Efficacy Lumens/Watt	Radiance Angle	Relevant OSRAM LED Data
ILO-01TT1-09HW-CC211.	min 90	2700K	28V	350mA	970Lm	9.8W	99	+/- 60°	GWP7LM32. CM
ILO-01TT1-09WM-CC211.		3000K			970Lm		99		
ILO-01TT1-09QW-CC211.		3500K			1042Lm		106		
ILO-01TT1-09NW-CC211.		4000K			1120Lm		114		

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§ Tolerance +/- 10%

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

ILO-01TT2-09xx-EC211. Family of Products - 38V min 80 CRI

ILS PART NUMBER	CRI	CCT*	Forward Voltage	Current	Flux †	Typical Wattage§	Efficacy Lumens/Watt	Radiance Angle	Relevant OSRAM LED Data
ILO-01TT2-09HW-EC211.	min 80	2700K	38V	350mA	1500Lm	13.3W	113	+/- 60°	GWP7LP32. EM
ILO-01TT2-09WM-EC211.		3000K			1640Lm		123		
ILO-01TT2-09QW-EC211.		3500K			1640Lm		123		
ILO-01TT2-09NW-EC211.		4000K			1640Lm		123		
ILO-01TT2-09MW-EC211.		4500K			1640Lm		123		
ILO-01TT2-09WW-EC211.		5000K			1800Lm		135		
ILO-01TT2-09ST-EC211.		5700K			1800Lm		135		
ILO-01TT2-09UL-EC211.		6500K			1800Lm		135		

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§ Tolerance +/- 10%

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

ILO-01TT2-09xx-CC211. Family of Products - 38V min 90 CRI

ILS PART NUMBER	CRI	CCT*	Forward Voltage	Current	Flux †	Typical Wattage§	Efficacy Lumens/Watt	Radiance Angle	Relevant OSRAM LED Data
ILO-01TT2-09HW-CC211.	min 90	2700K	38V	350mA	1210Lm	13.3W	91	+/- 60°	GWP7LP32. CM
ILO-01TT2-09WM-CC211.		3000K			1300Lm		98		
ILO-01TT2-09QW-CC211.		3500K			1300Lm		98		
ILO-01TT2-09NW-CC211.		4000K			1400Lm		105		

* 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

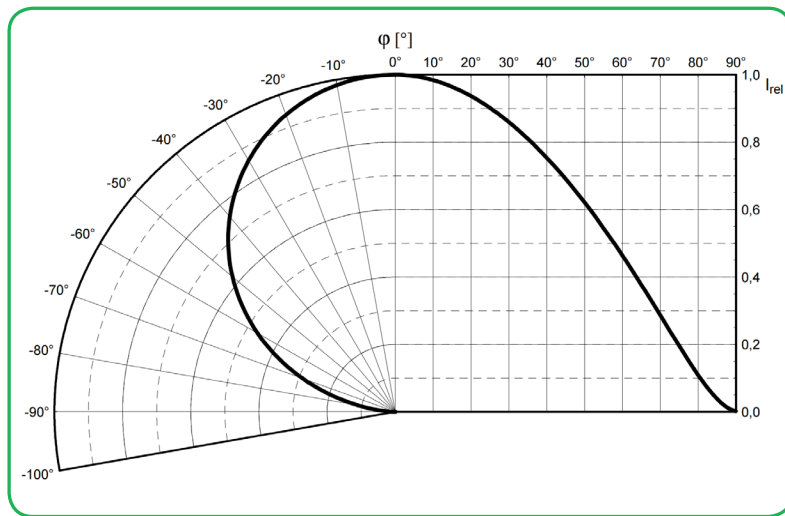
ILS PART NUMBER	Operating Temperature at Tc-Point [°C]*	Storage Temperature [°C]*	Forward Current per chip [mA]*	Reverse Voltage [Vdc]*
ILO-01TTx-09xx-xC211.	85	-40 to +125	400mA	1.2V

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

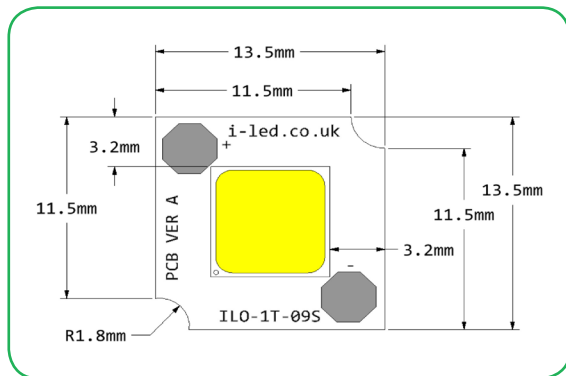
Exceeding maximum ratings for operating voltage will cause hazardous overload and will likely destroy the LED module.

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.

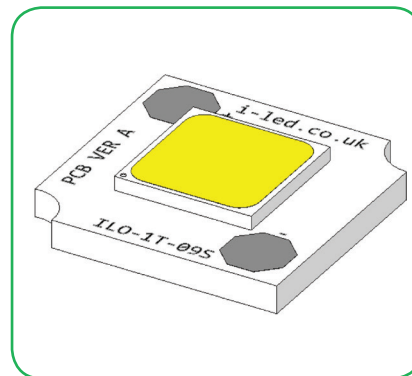
Radiation of Single LED



Technical Drawing



3D Drawing



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

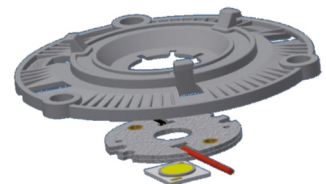
Sockets and Connectors

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-01TTx-09xx-xC211. family of products;

434 Typ L1

Manufacturer : Bender Wirth



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.

LEDiL

Ordering Code	Beam	Diameter	Height	Family	FWHM	Material/ Lens	Material/ Holder	Material/ Reflector	Fastening
FCN13705_ ANGELA-S	S	119.5	79.31	Angela	6		PC	PC	
FCN13706_ ANGELA-M	M	119.5	79.31	Angela	14		PC	PC	
FCN13707_ ANGELA-W	W	119.5	79.31	Angela	33		PC	PC	
FCN14690_ ANGELA-XW	W	119.5		Angela	72			HRPC	
FCN14647_ ANGELINA-XW	W			Angelina	94		PC	HRPC	socket
FCN13694_ ANGELINA-S	S	82	36.04	Angelina	17		PC	PC	screw
FCN13695_ ANGELINA-M	M	82	36.04	Angelina	31		PC	PC	screw
FCN13696_ ANGELINA-W	W	82	36.04	Angelina	45		PC	PC	screw
FCN13925_ BARBARA-S-PF- VERO13/18	S	70	41.7	Barbara	12			PC	
FCN13927_ BARBARA-W-PF- VERO13/18	W	70	41.7	Barbara	32			PC	
FCN13929_ BARBARA-WW-PF- VERO13/18	WW	70	41.7	Barbara	43			PC	
FCN14311_ BARBARA-XW-PF- VERO13/18		70	42.25	Barbara	70		PC	PC	screw
C13555_BRIDGET- W-UNI	W	22.6	12.8	Bridget	62			PC	glue
C13556_BRIDGET- M-UNI	M	22.6	12.8	Bridget	52			PC	glue
C13557_BRIDGET- S-UNI	S	22.6	12.8	Bridget	44			PC	glue
CP15313_CARMEN- W-B	W	69.93	36.26	Carmen	0	PMMA	PC		
F14325_JENNY- 8X1-CY	Wide-Area	280 + 35	11.5	Jenny	103+103	Silicone			pin, glue
FCN14648_JENNY- CY	Wide-Area	34.8+50	11.5	Jenny	103+103	Silicone	PC		screw
F14326_JENNY- 8X1-T4	Street	35 + 280	17.02	Jenny	asymmetric	Silicone			pin, glue

Ordering Code	Beam	Diameter	Height	Family	FWHM	Material/ Lens	Material/ Holder	Material/ Reflector	Fastening
F14531_JENNY-CY	Wide-Area	35 + 35	11.5	Jenny	103+103	Silicone			
F14563_JENNY-T4	Street	35 + 35	17.02	Jenny	asymmetric	Silicone			pin, glue
FCN14875_ JENNY-T4	Street	35 + 50	17.02	Jenny	asymmetric	Silicone			
CN14068_LENA-S	S			Lena	8		PC		
CN14082_LENA-M	M	111	84.4	Lena	17		PC	PC	
CN14086_LENA-SS	Asymmetric	111	84.4	Lena	10		PC	PC	
CN14087_LENA- SS-DL	Asymmetric	111	86	Lena	13		PC	PC	
CN14089_LENA- S-DL	S	111	86	Lena	10		PC	PC	
CN14090_LENA- M-DL	M	111	86	Lena	20		PC	PC	
CN14091_LENA- W-DL	W	111	86	Lena	45		PC	PC	
CN14101_LENINA-S	S	74	44.4	Lenina	11		PC	PC	
CN14102_ LENINA-M	M	74	46.15	Lenina	23		PC	PC	
CN14104_LENINA- XW	WWW	74	44.4	Lenina	75		PC		
CN14105_LENINA- S-DL	S	74	46.15	Lenina	13	PC	PC	PC	screw
CN14106_LENINA- M-DL	M	74	46.15	Lenina	26		PC	PC	
CN14107_LENINA- W-DL	W	74	46.15	Lenina	57	PC	PC	PC	
CN14108_LENINA- XW-DL	WWW	74	46.15	Lenina	73	PC	PC	PC	
C12476_MIRELLA- 50-S	S	49.9	23.9	Mirella	20			PC	glue
C12477_MIRELLA- 50-M	M	49.9	23.9	Mirella	29			PC	glue
C12477_MIRELLA- 50-M	M	49.9	23.9	Mirella	30			PC	glue
C12478_MIRELLA- 50-W	W	49.9	23.9	Mirella	42			PC	glue
CN12483_MIRELLA- 50-S-DL	S	49.9	23.9	Mirella	28	PC		PC	glue
CN12484_MIRELLA- 50-M-DL	M	49.9	23.9	Mirella	35	PC		PC	glue
CN12485_MIRELLA- 50-W-DL	W	49.9	23.9	Mirella	48	PC		PC	glue
CN12485_MIRELLA- 50-W-DL	W	49.9	23.9	Mirella	50	PC		PC	glue
CN13127_MIRELLA- 50-S-PF	S	49.9	24.8	Mirella	19		PC	PC	socket, screw
CN13128_MIRELLA- 50-M-PF	M	49.9	24.8	Mirella	26		PC	PC	screw, glue
CN13129_MIRELLA- 50-W-PF	W	49.9	24.8	Mirella	41		PC	PC	screw, glue

Ordering Code	Beam	Diameter	Height	Family	FWHM	Material/ Lens	Material/ Holder	Material/ Reflector	Fastening
CN13130_MIRELLA-50-S-DL-PF	S	49.9	25.5	Mirella	20		PC	PC	screw, glue
CN13131_MIRELLA-50-M-DL-PF	M	49.9	25.5	Mirella	31		PC	PC	screw, glue
CN13132_MIRELLA-50-W-DL-PF	W	49.9	25.5	Mirella	46		PC	PC	screw, glue
CN13517_MIRELLA-50-S-CL	S	49.9	23.9	Mirella	19	PC		PC	glue
CN13518_MIRELLA-50-M-CL	M	49.9	24	Mirella	30	PC		PC	glue
CN13520_MIRELLA-50-W-CL	W	49.9	23.9	Mirella	46	PC		PC	glue
CN13523_MIRELLA-50-S-CL-PF	S	49.9	25.5	Mirella	18		PC	PC	screw, glue
CN13524_MIRELLA-50-M-CL-PF	M	49.9	25.5	Mirella	30		PC	PC	screw, glue
CN13525_MIRELLA-50-W-CL-PF	W	49.9	25.5	Mirella	46		PC	PC	screw, glue
CN13899_MIRELLA-50-S-RZL	S	49.9	24	Mirella	32	PC		PC	socket, screw
CN13900_MIRELLA-50-M-RZL	M	49.9	24	Mirella	37	PC		PC	socket, screw
CN13901_MIRELLA-50-W-RZL	W	49.9	24	Mirella	50	PC		PC	socket, screw
CN13905_MIRELLA-50-S-PF-RZL	S	49.9	25.6	Mirella	25	PC		PC	socket, screw
CN13906_MIRELLA-50-M-PF-RZL	M	49.9	25.6	Mirella	36	PC		PC	socket, screw
CN13907_MIRELLA-50-W-PF-RZL	W	49.9	25.6	Mirella	46	PC		PC	socket, screw
CN13918_MIRELLA-50-S-PF-VERO13	S	49.9	24	Mirella	21			PC	
CN13920_MIRELLA-50-M-PF-VERO13	M	49.9	24	Mirella	26			PC	
CN13923_MIRELLA-50-W-PF-VERO13	W	49.9	24	Mirella	36			PC	
CN14209_MIRELLA-XW-PF-VERO13		49.9	25.2	Mirella	73			PC	
CN14211_MIRELLA-XW-CL-PF-VERO13		49.9	23.96	Mirella	68			PC	
CN14212_MIRELLA-XW-DL-PF-VERO13		49.9	23.96	Mirella	67			PC	
CN14213_MIRELLA-50-S-DL-PF-VERO13		49.9	23.96	Mirella	27		PC		
CN14214_MIRELLA-50-S-CL-PF-VERO13		49.9	23.96	Mirella	20			PC	
CN14215_MIRELLA-50-M-DL-PF-VERO13		49.9	23.96	Mirella	33		PC	PC	
CN14216_MIRELLA-50-M-CL-PF-VERO13		49.9	23.96	Mirella	28			PC	

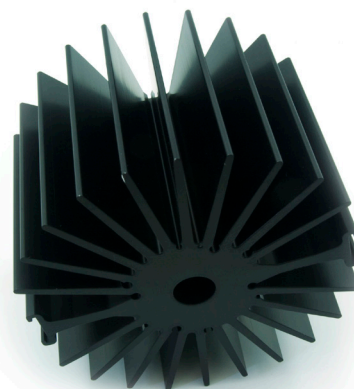
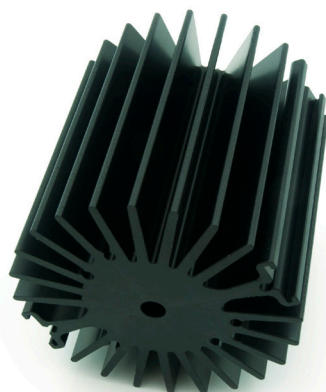
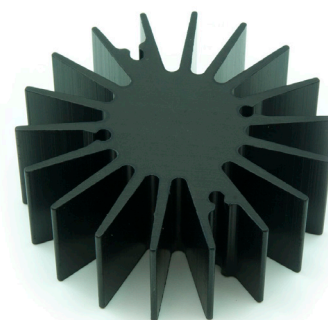
Ordering Code	Beam	Diameter	Height	Family	FWHM	Material/ Lens	Material/ Holder	Material/ Reflector	Fastening
CN14217_MIRELLA-50-W-DL-PF-VERO13		49.9	23.96	Mirella	41		PC	PC	
CN14218_MIRELLA-50-W-CL-PF-VERO13		49.9	23.96	Mirella	39		PC	PC	
C14472_MIRELLA-50-XW	W	49.9	23.9	Mirella	80			HRPC	
FCN15316_RONDA-WWW	WWW	49.9	19.8	Ronda	0	PMMA	PC		socket
CN13990_SAGA-HB-IP-WHT	HB	50	12	Saga	58	Silicone	HRPC	HRPC	screw
CN13990_SAGA-HB-IP-WHT	HB	50	12	Saga	47	Silicone	HRPC	HRPC	screw
CN14236_WINNIE-S	S	49.8	19.3	Winnie	21	PMMA	PC		screw
CN14236_WINNIE-S	S	49.8	19.3	Winnie	20	PMMA	PC		screw
CN14237_WINNIE-M	M	49.8	19.3	Winnie	35	PMMA	PC		screw
CN14237_WINNIE-M	M	49.8	19.3	Winnie	35	PMMA	PC		screw
CN14238_WINNIE-W	W	49.8	19.3	Winnie	46	PMMA	PC		screw
CN14238_WINNIE-W	W	49.8	19.3	Winnie	46	PMMA	PC		screw
CN14811_WINNIE-O	O	49.8	19.3	Winnie	63+22	PMMA			screw
FP15072_ZORYA-SC-40	Decorative	55	35	Zorya	0	Silicone	PC		socket

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-100X65MM-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
ILO-01TTx-09xx-xC211.	ILA-TIM-LES09-1A	ILA-TIM-LES09-2A
ILO-01FFx-13xx-xC211.	ILA-TIM-LES13-1A	ILA-TIM-LES13-2A
ILO-04FFx-13xx-xP211.	ILA-TIM-LES13-1A	ILA-TIM-LES13-2A
ILO-05FFx-13x-xP211.	ILA-TIM-LES13-1A	ILA-TIM-LES13-2A
ILO-01TTx-13xx-xC211.	ILA-TIM-LES13-1A	ILA-TIM-LES13-2A
ILO-03FFx-19xx-xC211.	ILA-TIM-LES19-1A	ILA-TIM-LES19-2A
ILO-04FFx-19xx-xC211.	ILA-TIM-LES19-1A	ILA-TIM-LES19-2A
ILO-04TTx-23xx-xP211.	ILA-TIM-LES23-1A	ILA-TIM-LES23-2A
ILO-09FFx-23xx-xC211.	ILA-TIM-LES23-1A	ILA-TIM-LES23-2A
ILO-05FFx-23xx-xC211.	ILA-TIM-LES23-1A	ILA-TIM-LES23-2A
ILO-12FFx-23xx-xP211.	ILA-TIM-LES23-1A	ILA-TIM-LES23-2A
ILO-16FFx-33xx-xP211	ILA-TIM-LES33-1A	ILA-TIM-LES33-2A
ILO-26FFx-33xx-xP211.	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.