

# MechaTronix in LED

## ModuLED Micro Modular Passive Star LED Cooler ø86mm



### Features & Benefits

- For spot and downlight designs from 1,100 to 4,600 lumen
- Thermal resistance range Rth 1.2 - 1.8°C/W
- Modular design with mounting holes foreseen for a wide range of LED modules and COB's:
  - Zhaga book 3 Spot Light Modules Edison Edilex, Philips Fortimo SLM, Tridonic Talexx Stark SLE, Vossloh Schwabe Luga Shop, ...
  - Bridgelux BXRA ESS, ESR, Vero 10, Vero 13, Vero 18, V-series
  - Citizen Citiled CLL022-CLU024, CLL032-CLU034, CLL042-CLU044
  - Cree XLamp CXA13xx, CXA15xx, CXA18xx
  - LG Innotek LEMWM18 10W, 13W, 17W, 24W, LEMWM28, Eagle Eye LED Modules
  - Osram PrevaLED Core AC, Core Z3, Soleriq S13, S19, E30
  - Philips Lumileds Luxeon COB's 1203, 1204, 1205, 1208, 1211, K arrays K12, K16
  - Seoul Semiconductor ZC6, ZC12, ZC18, ZC25, ZC40
- Direct mounting or by use of Zhaga Book 3 / Book 11 LED holder.
- Diameter 86mm - Standard height 30mm & 50mm & 80mm  
Other heights on request
- Extruded from highly conductive aluminum



### Order Information



Example : ModuLED Micro 8650-B

ModuLED Micro 86 **1** - **2**

- 1** Height (mm)
- 2** Anodising Color  
B - Black  
C - Clear

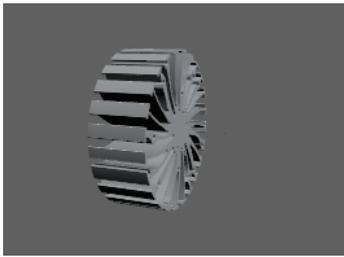
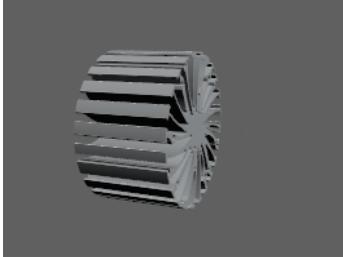
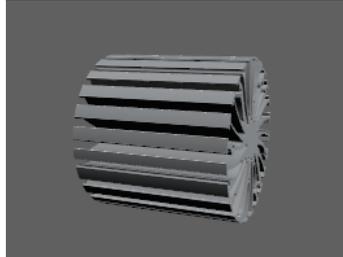
*ModuLED Micro* is designed in this way that you can mount LED modules from various manufacturers on the same LED cooler  
Simple mounting with self tapping screws  
Recommended screw force 6lb/in  
Screws are available from MechaTronix

# MechaTronix *in* LED

## ModuLED Micro Modular Passive Star LED Cooler ø86mm



### Product Details

| Model n°                                |  |  |  |
|---|---|--|---|
| Dimension (mm) <sup>*1</sup>            | ø86 x h30   | ø86 x h50  | ø86 x h80   |
| Volume (mm <sup>3</sup> )               | 63046   | 105077   | 168123  |
| Cooling Surface (mm <sup>2</sup> )      | 58993   | 95520  | 150311  |
| Weight (gr)                             | 170   | 284  | 454   |
| Thermal Resistance (°C/W) <sup>*2</sup> | 1.8   | 1.5  | 1.2   |
| Power Pd (W) <sup>*3</sup>              | 28  | 33   | 42  |
| Heat Sink Material                      | AL6063-T5   | AL6063-T5  | AL6063-T5   |

<sup>\*1</sup> 3D files are available in ParaSolid, STP and IGS on request

<sup>\*2</sup> The thermal resistance Rth is determined with a calibrated heat source of 30mm x 30mm central placed on the heat sink, Tamb 40° and an open environment. Reference data @ heat sink to ambient temperature rise Ths-amb 50°C  
The thermal resistance of a LED cooler is not a fix value and will vary with the applied dissipated power Pd

<sup>\*3</sup> Dissipated power Pd. Reference data @ heat sink to ambient temperature rise Ths-amb 50°C  
The maximal dissipated power needs to be verified in function of required case temperature Tc or junction temperature Tj and related to the estimated ambient temperature where the light fixture will be placed  
Please be aware the dissipated power Pd is not the same as the electrical power Pe of a LED module

To calculate the dissipated power please use the following formula:  $Pd = Pe \times (1 - \eta_L)$

Pd - Dissipated power

Pe - Electrical power

$\eta_L$  = Light efficiency of the LED module

### Notes:

- MechaTronix reserves the right to change products or specifications without prior notice.
- Mentioned models are an extraction of full product range.
- For specific mechanical adaptations please contact MechaTronix.

# MechaTronix in LED

## ModuLED Micro Modular Passive Star LED Cooler ø86mm



### Mounting Options

The ModuLED Micro passive LED coolers are standard foreseen from a variety of mounting holes which allow direct mounting of LED engines, COB's and secondary optics on the LED heat sink.

In this way mechanical afterwork and related costs can be avoided, and lighting designers can standardize their designs on a limited number of LED coolers.

Below you find an overview of LED modules and COB's which standard fit on the ModuLED Micro cooler.

The ModuLED Micro is probably the most complete standard LED cooler with regards to mounting possibilities of Zhaga and the latest generation of COB LED modules.

For more details about the required mounting holes and thermal results for your specific LED brand and model, please refer to the brand LED cooler datasheets under "Brand Products" and the brand LED cooler overview under the "Download" menu.

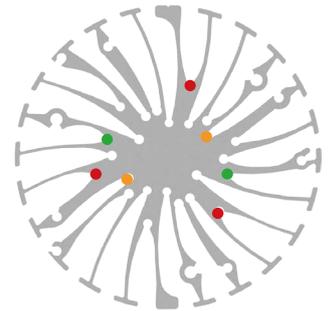
## Zhaga



The Zhaga Consortium is developing specifications that enable the interchangeability of LED light sources made by multiple different manufactures. The Zhaga specifications, known as Books, describe the interfaces between LED luminaires and LED light engines. Zhaga's members include hundreds of companies from throughout the global lighting industry. The cooperation is governed by a consortium agreement that defines rules regarding confidentiality, intellectual property and decision making.

### Mounting indicator marks overview

MechaTronix recommends the use of a high thermal conductive interface between the LED module and the LED cooler. Either thermal grease, a thermal pad or a phase change thermal pad thickness 0.1-0.15mm is recommended. Thermal pads or phase change thermal pads can be pre-applied from MechaTronix.



### Zhaga Book 3 Spot Light Modules

Zhaga Interface Specification Book 3 defines the interfaces of a type-D LED light engine (non-socketable LED module with separate electronic control gear). The LED light engine LLE has a round disc shape with a maximum height of 7.2 mm and a typical diameter of 50 mm. It is suitable for spot-lighting and other applications that benefit from a small, circular source. Book 3 specifies a circular light-emitting surface (LES) that can have a range of diameters, namely 9 mm, 13.5 mm, 19 mm and 23 mm.

#### Zhaga book 3 compliant LED Spot Light modules \*1

- Edison Edilex SLM
- Osram PrevaLED CORE
- Philips Fortimo SLM
- Tridonic Talexx Stark SLE
- Vexica Lumaera
- Vossloh Schwabe Luga Shop

\*1 This is a non-binding overview of available Zhaga book 3 LED modules at press

#### Zhaga Book 3 mounting through the use of LED holders and connectors

With the use of Zhaga Book 3 mechanical compatible LED holders, a wide variety of LED COB's can be mounted in the same way on these LED coolers.

Zhaga Book 3 compatible LED holders can be found from BJB, TE Connectivity (Tyco), Molex and Ideal Industries.



# MechaTronix in LED

## ModuLED Micro Modular Passive Star LED Cooler ø86mm



### Mounting Options



#### Zhaga Book 3 Spot Light Modules

##### LED COB's for which Zhaga book 3 LED holders are available

- Bridgelux ES rectangular LED array
- Citizen CitiLED CLL022, CLU024, CLL032, CLU034
- Cree XLamp CXA13xx, 15xx, 18xx, 25xx, 30xx
- Edison Opto HM05, HM09, HM16, HM30
- Lextar Nimbus 1500, 2000, 3000
- LG Innotek LEMWM 10, 13, 17, 24
- Nichia J216, J360, L110, L121, L204
- Osram Soleriq S13, S19, E30
- Philips Lumileds Luxeon 1203, 1204, 1205 and 1208, Luxeon K12 and K16
- Prolight Opto PABA, PANA, PACB, PACC
- Samsung LC026, LC040
- Seoul Semiconductor ZC12, ZC18, ZC25, ZC40
- Sharp Mega Zenigata and Tiger Zenigata
- Tridonic Talexx Stark LES 10, LES 17

##### Mounting

- Direct mounting with 2 screws  
M3 x 10mm  
Green indicator marks

##### Reflector ring Mounting

- This optional ring can be mounted on top of the Edison Opto Edilex spot light module and provides in this way an easy plug-and-play attachment of various reflectors.
- Mounting with 3 screws  
M3 x 10mm  
Red indicator marks

#### Zhaga Book 11 Spot Light Modules

Zhaga Interface Specification Book 11 defines the interfaces of an LED light engine (LLE) comprising a circular, non-socketable LED driver (electronic control gear).

The LED modules in Book 11 similar to both Book 3 and Book 10.

In comparison, Book 11 LED modules are smaller in size and have lower light output.



##### Model names

- Citizen CitiLED COB CL-L022 - CL-U024  
BJB Spotlight connector 47.319.6060
- Cree COB CXA 13xx series  
BJB Spotlight connector 47.319.6101
- Cree COB CXA 1507 - CXA 1512  
BJB Spotlight connector 47.319.6120
- Edison Opto COB HM05 - HM09  
BJB Spotlight connector 47-319-6060
- Lextar COB Nimbus 1500  
BJB Spotlight connectors 47.319.6110
- Osram COB Soleriq S13 - X13  
BJB Spotlight connectors 47.319.6110
- Tridonic Talexx Stark COB SLE LES 10  
BJB Spotlight connector 47.319.6060

##### Mounting

- Direct mounting with 2 screws  
M3 x 10mm  
Orange indicator marks

# MechaTronix in LED

## ModuLED Micro Modular Passive Star LED Cooler ø86mm



### Mounting Options

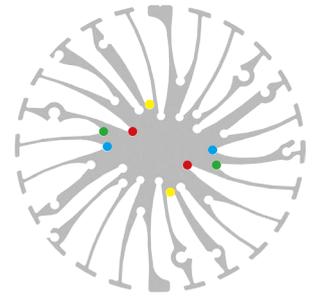
#### Bridgelux LED Arrays



Bridgelux is a leading provider of high power, cost effective and energy efficient light emitting diode (LED) solutions. Leveraging patented light source technology, Bridgelux LED Arrays replace traditional technologies (such as incandescent, halogen, fluorescent and high intensity discharge lighting) with integrated solid state light sources enabling high performance and energy-efficient products for the general lighting market.

#### Mounting indicator marks overview

MechaTronix recommends the use of a high thermal conductive interface between the LED module and the LED cooler. Either thermal grease, a thermal pad or a phase change thermal pad thickness 0.1-0.15mm is recommended. Thermal pads or phase change thermal pads can be pre-applied from MechaTronix.



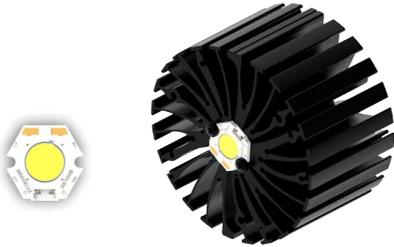
#### Bridgelux Vero 10 LED Array

##### Model names

- Vero 10 BXRC-27x1000
- Vero 10 BXRC-30x1000
- Vero 10 BXRC-35E1000
- Vero 10 BXRC-40x1000
- Vero 10 BXRC-50x1000

##### Mounting

- Direct mounting with 2 self tapping screws M3 x 6mm
- Red indicator marks



#### Bridgelux Vero 13 LED Array

##### Model names

- Vero 13 BXRC-27x2000
- Vero 13 BXRC-30x2000
- Vero 13 BXRC-35E2000
- Vero 13 BXRC-40x2000
- Vero 13 BXRC-50x2000

##### Mounting

- Direct mounting with 2 self tapping screws M3 x 6mm
- Blue indicator marks



#### Bridgelux Vero 18 LED Array

##### Model names

- Vero 18 BXRC-27x4000
- Vero 18 BXRC-30x4000
- Vero 18 BXRC-35E4000
- Vero 18 BXRC-40E4000
- Vero 18 BXRC-50C4000

##### Mounting

- Direct mounting with 2 self tapping screws M3 x 6mm
- Blue indicator marks



#### Bridgelux V series V8 LED Array

##### Model names

- V8 BXRE-xxx0800-A
- V8 BXRE-xxx0800-B

##### Mounting

- With Bridgelux V8 star holder
- Mounting with 2 self tapping screws M3 x 6mm
- Red indicator marks

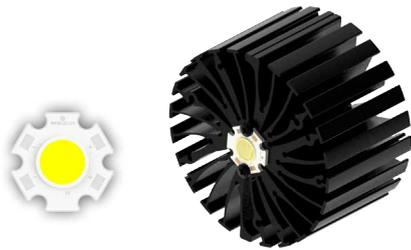


# MechaTronix in LED

## ModuLED Micro Modular Passive Star LED Cooler ø86mm



### Mounting Options



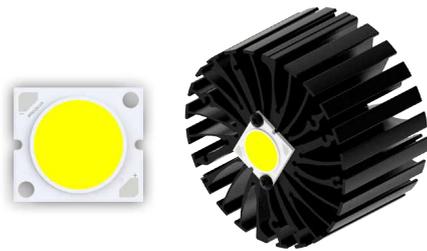
#### Bridgelux ES Star LED Array

##### Model names

- BXRA-xxx0540
- BXRA-xxx0740
- BXRA-40E0600
- BXRA-40E0810
- BXRA-xxC0700
- BXRA-xxC1000

##### Mounting

- Direct mounting with 2 self tapping screws M3 x 6mm
- Red indicator marks



#### Bridgelux ES Rectangle LED Array

##### Model names

- BXRA-xxx0800
- BXRA-xxx1200
- BXRA-xxx2000
- BXRA-40E0950
- BXRA-40E1350
- BXRA-40E2200
- BXRA-xxC1100
- BXRA-xxC1600
- BXRA-xxC2600

##### Mounting

- Direct mounting with 2 self tapping screws M3 x 6mm
- Yellow indicator marks
- With Zhaga Book 3 LED holder
- BJB spotlight connector 47.319.2040
- Mounting with 2 self tapping screws M3 x 8mm
- Green indicator marks

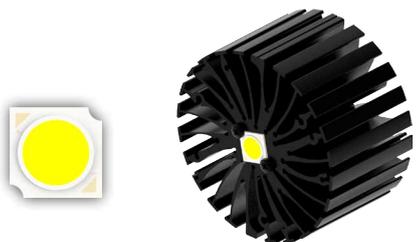
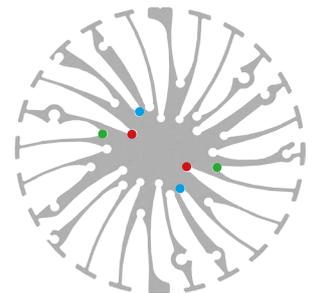
### Citizen LED COB



Citizen Electronics Co., Ltd. is a precision electronics manufacturer with headquarters in Fujiyoshida City, Yamanash Japan. Prefecture and a subsidiary of Citizen Holdings Co., Ltd. Citizen Electronics is a leader in LED light sources for electronic devices and high power white LED lamps. The second generation CITILED CLL LED COB modules and the new upcoming generation CLU distinguish themselves through the combination of high lumen per watt performance combined with a perfect light quality control.

#### Mounting indicator marks overview

MechaTronix recommends the use of a high thermal conductive interface between the LED module and the LED cooler. Either thermal grease, a thermal pad or a phase change thermal pad thickness 0.1-0.15mm is recommended. Thermal pads or phase change thermal pads can be pre-applied from MechaTronix.



#### Citizen Cited CLL022 - CLU024

##### Model names

- CLL032-xxxx
- CLU034-xxxx

##### Mounting

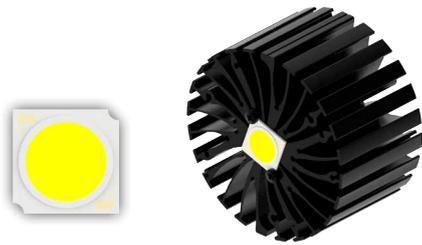
- Direct mounting with 2 self tapping screws M3 x 6mm
- Red indicator marks

# MechaTronix in LED

## ModuLED Micro Modular Passive Star LED Cooler ø86mm



### Mounting Options



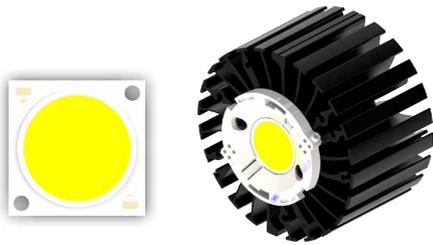
#### Citizen Cited CLL032 - CLU034

##### Model names

- CLL032-xxxx
- CLU034-xxxx

##### Mounting

- Direct mounting with 2 self tapping screws M3 x 6mm
- Blue indicator marks
- With Zhaga Book 3 LED holder
- BJB spotlight connector 47.319.2020
- TE Connectivity Lumawise type Z50 2213254-1
- TE Connectivity Lumawise type Z50 2213254-2
- Mounting with 2 self tapping screws M3 x 8mm
- Green indicator marks



#### Citizen Cited CLL042 - CLU044

##### Model names

- CLL042-xxxx
- CLU044-xxxx

##### Mounting

- With Zhaga Book 3 LED holder
- BJB spotlight connector 47.319.2030
- Mounting with 2 self tapping screws M3 x 8mm
- Green indicator marks

### Cree XLamp LED Array

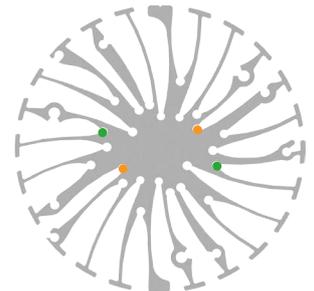


Cree XLamp® LEDs deliver the industry's best lighting-class performance and are application-optimized to enable the lowest system cost.

Cree's new CXA LED Arrays deliver high lumen output and efficacy in a family of single, easy-to-use components. Optimized to simplify designs and lower system cost, Cree's CXA LED arrays are available in system level performance from 300 to over 16,000 lumens and can enable applications ranging from GU10s and commercial downlights to outdoor area lighting and high-bay lighting.

#### Mounting indicator marks overview

MechaTronix recommends the use of a high thermal conductive interface between the LED module and the LED cooler. Either thermal grease, a thermal pad or a phase change thermal pad thickness 0.1-0.15mm is recommended. Thermal pads or phase change thermal pads can be pre-applied from MechaTronix.



#### Cree XLamp CXA13 LED Array

##### Model names

- CXA1304-xxxx
- CXA1310-xxxx

##### Mounting

- With Zhaga Book 11 LED holder
- BJB Spotlight connector 47.319.6120
- Mounting with 2 self tapping screws M3 x 10mm
- Orange indicator marks

# MechaTronix in LED

## ModuLED Micro Modular Passive Star LED Cooler ø86mm



### Mounting Options



#### Cree XLamp CXA15 LED Array

##### Model names

- CXA1507-xxxx
- CXA1512-xxxx
- CXA1520-xxxx

##### Mounting

- With Zhaga Book 11 LED holder
- BJB Spotlight connector 47.319.6101
- Mounting with 2 self tapping screws M3 x 10mm
- Orange indicator marks



#### Cree XLamp CXA18 LED Array

##### Model names

- CXA1816-xxxx
- CXA1820-xxxx

##### Mounting

- With Zhaga Book 3 LED holder
- BJB Spotlight connector 47.319.2130
- TE Connectivity Lumawise type Z50 2213401-1
- TE Connectivity Lumawise type Z50 2213401-2
- Mounting with 2 self tapping screws M3 x 10mm
- Green indicator marks

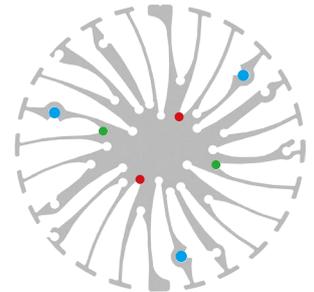
### LG Innotek LED Modules and COB



LG Innotek is a global specialized material and component manufacturer who is making a better world through cutting edge core component technology that is leading the market and opening a smarter future through the development of new eco-friendly materials. With the world's highest production capacity as a single-factory and a solid LED business base built over more than a decade, LG Innotek's Paju LED factory produces 2 billion chips a month. Their LEMWM COB LED modules deliver a perfect lumen per watt ratio in an uncompromised lighting quality.

#### Mounting indicator marks overview

MechaTronix recommends the use of a high thermal conductive interface between the LED module and the LED cooler. Either thermal grease, a thermal pad or a phase change thermal pad thickness 0.1-0.15mm is recommended. Thermal pads or phase change thermal pads can be pre-applied from MechaTronix.



#### LG LEMWM18 10W/13W/17W/24W COB

##### Model names

- LEMWM18580xxxx
- LEMWM18680xxxx
- LEMWM18780xxxx
- LEMWM18880xxxx

##### Mounting

- Direct mounting with 2 self tapping screws M2 x 6mm
- Red indicator marks
- With Zhaga Book 3 LED holder
- BJB Spotlight connector 47.319.2080
- Mounting with 2 self tapping screws M3 x 8mm
- Green indicator marks



# MechaTronix in LED

## ModuLED Micro Modular Passive Star LED Cooler ø86mm



### Mounting Options



#### LG LEMWM28 COB

##### Model names

- LEMWM28xxxx

##### Mounting

- With Zhaga Book 3 LED holder
- BJB Spotlight connector 47.319.2030
- Mounting with 2 self tapping screws M3 x 8mm
- Green indicator marks



#### LG Eagle Eye LED Modules

##### Model names

- LLDMWW0-15KxxxA

##### Mounting

- Direct mounting with 3 self tapping screws M4 x 6mm
- Blue indicator marks

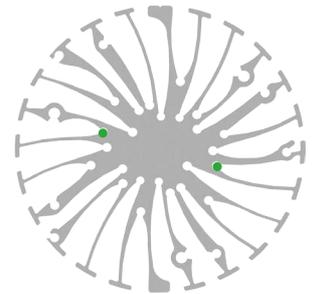
### Osram PrevaLED LED Modules



With the PrevaLED Core and PrevaLED Core AC, Osram leads the path of versatile LED light modules interchangeable according Zhaga book 3 specifications. With an initial color binning below 3 steps Mc Adam, a wide range of lumen packages from 1.100lm all the way up to 5.000lm and a broad availability of color temperatures, the Osram PrevaLED Core found it's strive in high-end shop and down light applications with an uncompromised lighting quality.

#### Mounting indicator marks overview

MechaTronix recommends the use of a high thermal conductive interface between the LED module and the LED cooler. Either thermal grease, a thermal pad or a phase change thermal pad thickness 0.1-0.15mm is recommended. Thermal pads or phase change thermal pads can be pre-applied from MechaTronix.



#### Osram PrevaLED Core AC

##### Model names

- PL-CORE-AC-800xx
- PL-CORE-AC-2000xx

##### Mounting

- Direct mounting with 2 self tapping screws M3 x 10mm
- Green indicator marks



#### Osram PrevaLED Core Z3

##### Model names

- PL-CORE-1100-xxx-Z3
- PL-CORE-2000-xxx-Z3
- PL-CORE-3000-xxx-Z3
- PL-CORE-5000-xxx-Z3

##### Mounting

- Direct mounting with 2 self tapping screws M3 x 10mm
- Green indicator marks

# MechaTronix in LED

## ModuLED Micro Modular Passive Star LED Cooler ø86mm



### Mounting Options

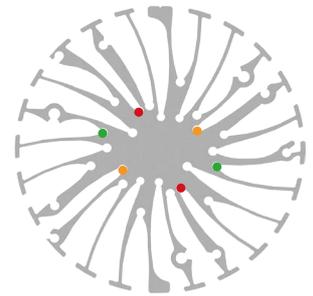
### Osram Opto Semiconductors LED COB



Osram SOLERIQ® LEDs are designed to meet the requirements of professional indoor general lighting applications. Large flux output, small light emitting surfaces, variation, CRI greater than 80 and easy to use Chip-on-Board technology support easy and creative lighting design. These properties make SOLERIQ® LED COB modules a high efficient, high-quality and price-performance-optimized solution for all demanding and at the same time cost-conscious lighting manufactures and designers.

#### Mounting indicator marks overview

MechaTronix recommends the use of a high thermal conductive interface between the LED module and the LED cooler. Either thermal grease, a thermal pad or a phase change thermal pad thickness 0.1-0.15mm is recommended. Thermal pads or phase change thermal pads can be pre-applied from MechaTronix.



#### Osram Soleriq S13 LED COB

##### Model names

- GW-KAGHB1-xxxx

##### Mounting

- Direct mounting with 2 screws M3 x 6mm  
Red indicator marks
- With Zhaga Book 3 LED holder  
TE Connectivity Lumawise type Z50 2213401-1  
TE Connectivity Lumawise type Z50 2213401-2  
Mounting with 2 screws M3 x 8mm  
Green indicator marks
- With Zhaga Book 11 LED holder  
BJB Spotlight connector 47.319.6110  
Mounting with 2 screws M3 x 8mm  
Orange indicator marks



#### Osram Soleriq S19 LED COB

##### Model names

- GW-KAHLB1-xxxx

##### Mounting

- With Zhaga Book 3 LED holder  
BJB spotlight connector 47.319.2170  
TE Connectivity Lumawise type Z50 2213407-1  
TE Connectivity Lumawise type Z50 2213407-2  
Mounting with 2 self tapping screws M3 x 8mm  
Green indicator marks



#### Osram Soleriq E30 LED COB

##### Model names

- GW KAJRB2.EM-STTQ-xxxx
- GW KAJRB2.EM-TPTR-xxxx

##### Mounting

- Direct mounting with 2 self tapping screws M3 x 6mm  
Green indicator marks
- With Zhaga Book 3 LED holder  
BJB spotlight connector 47.319.2090  
Mounting with 2 self tapping screws M3 x 8mm  
Green indicator marks



# MechaTronix in LED

## ModuLED Micro Modular Passive Star LED Cooler ø86mm



### Mounting Options

### Philips LED Modules

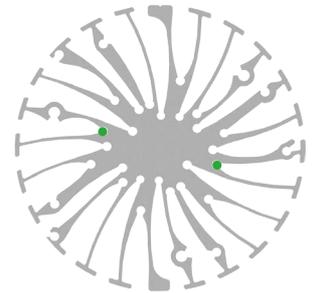
## PHILIPS

sense and simplicity

The third Philips Fortimo LED SLM generation is the ideal solution for spot lighting fixtures and highly efficient compact down light luminaires. It is specifically designed for the retail market showcasing retail merchandise in bright and vivid light. This generation is equipped with new Chip-On-Board (COB) LED technology. This technology enables the creation of the most efficient point source Philips LED system available.

### Mounting indicator marks overview

MechaTronix recommends the use of a high thermal conductive interface between the LED module and the LED cooler. Either thermal grease, a thermal pad or a phase change thermal pad thickness 0.1-0.15mm is recommended. Thermal pads or phase change thermal pads can be pre-applied from MechaTronix.



### Philips Fortimo SLM GEN3 / GEN4 LED Modules



#### Model names

- Fortimo LED SLM 2000 G3
- Fortimo LED SLM 3000 G3
- Fortimo LED SLM 4000 G3
- Fortimo LED SLM 4500 G3
- Fortimo LED SLM 1100 G4
- Fortimo LED SLM 2000 G4
- Fortimo LED SLM 3000 G4
- Fortimo LED SLM 4500 G4
- Fortimo LED SLM 3000 Food & Meat G4

#### Mounting

- Direct mounting with 2 self tapping screws M3 x 6mm
- Green indicator marks

# MechaTronix in LED

## ModuLED Micro Modular Passive Star LED Cooler ø86mm



### Mounting Options

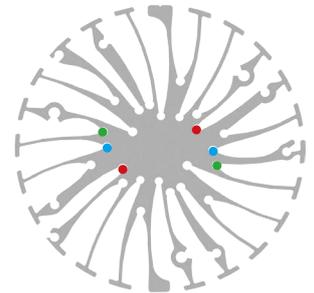
#### Philips Lumileds LED Array & COB

#### PHILIPS LUMILEDS

Philips Lumileds LUXEON COB is a new breakthrough in efficacy for arrays. Due to its industry leading small Light Emitting Surfaces (LES), the COB array is very easy work with and will enable easier and less expensive designs. All LUXEON COBs are available in a single 3-step as well as a single 5-step MacAdam Ellipse, ensuring uniform optical performance in the application. Ideal applications include down lights and directional lamps.

#### Mounting indicator marks overview

MechaTronix recommends the use of a high thermal conductive interface between the LED module and the LED cooler. Either thermal grease, a thermal pad or a phase change thermal pad thickness 0.1-0.15mm is recommended. Thermal pads or phase change thermal pads can be pre-applied from MechaTronix.



#### Luxeon COB 1203



##### Model names

- Luxeon COB LHC1-xxxx-1203

##### Mounting

- Direct mounting with 2 self tapping screws M3 x 6mm  
Red indicator marks
- With Zhaga Book 3 LED holder  
TE Connectivity Lumawise type Z50 2213382-1  
TE Connectivity Lumawise type Z50 2213382-2  
Mounting with 2 self tapping screws M3 x 8mm  
Green indicator marks

#### Luxeon COB 1204 - 1205 - 1208



##### Model names

- Luxeon COB LHC1-xxxx-1204
- Luxeon COB LHC1-xxxx-1205
- Luxeon COB LHC1-xxxx-1208

##### Mounting

- Direct mounting with 2 self tapping screws M3 x 6mm  
Blue indicator marks
- With Zhaga Book 3 LED holder  
BJB spotlight connector 47.319.2010  
TE Connectivity Lumawise type Z50 2213130-1  
TE Connectivity Lumawise type Z50 2213130-2  
Mounting with 2 self tapping screws M3 x 8mm  
Green indicator marks

#### Luxeon COB 1211



##### Model names

- Luxeon COB LHC1-xxxx-1211

##### Mounting

- With Zhaga Book 3 LED holder  
BJB spotlight connector 47.319.2030  
Mounting with 2 self tapping screws M3 x 8mm  
Green indicator marks

# MechaTronix in LED

## ModuLED Micro Modular Passive Star LED Cooler ø86mm



### Mounting Options



#### Luxeon K Array K12 - K16

##### Model names

- Luxeon K12 LXKX-Pxxx-xx12 (A)
- Luxeon K16 LXKX-Pxxx-xx16 (A)

##### Mounting

- With Zhaga Book 3 LED holder
- BJB spotlight connector 47.319.2070
- Mounting with 2 self tapping screws M3 x 8mm
- Green indicator marks

### Seoul Semiconductor LED COB

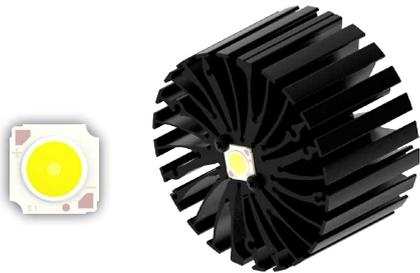
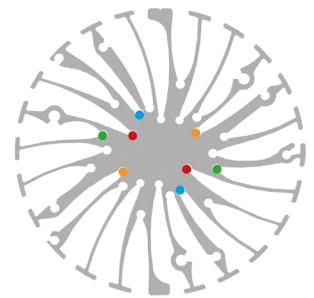


#### SEOUL SEMICONDUCTOR

The new Seoul Semiconductor ZC series Chip-On-Board (COB) LED Arrays offer high lumen density and efficacies of up to 140lm/W in a single, easy-to-use LED component family. Available in all major color temperatures from 2700K up to 6000K, these high flux packages deliver system level performance of 700 lumens to over 6,000 lumens. The new ZC series family is available in a single 3-step MacAdam Ellipse binning, ensuring excellent color consistency with minimum CRI options of 70, and 80 combining high quality of light with high efficacy.

#### Mounting indicator marks overview

MechaTronix recommends the use of a high thermal conductive interface between the LED module and the LED cooler. Either thermal grease, a thermal pad or a phase change thermal pad thickness 0.1-0.15mm is recommended. Thermal pads or phase change thermal pads can be pre-applied from MechaTronix.



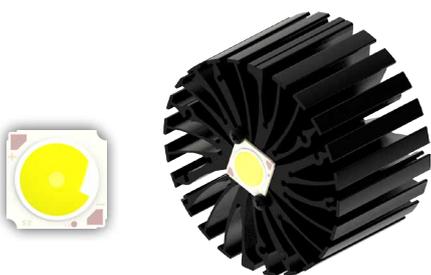
#### Seoul Semiconductor ZC 6 LED COB

##### Model names

- SDW01F1C
- SDW81F1C
- SDW91F1C

##### Mounting

- Direct mounting with 2 self tapping screws M3 x 6mm
- Red indicator marks
- With Zhaga Book 11 LED holder
- BJB Spotlight connector 47.319.6060
- Mounting with 2 self tapping screws M3 x 8mm
- Orange indicator marks



#### Seoul Semiconductor ZC 12 / 18 LED COB

##### Model names

- SDW02F1C
- SDW82F1C
- SDW92F1C
- SDW03F1C
- SDW83F1C
- SDW93F1C

##### Mounting

- Direct mounting with 2 self tapping screws M3 x 6mm
- Blue indicator marks
- With Zhaga Book 3 LED holder
- BJB Spotlight connector 47.319.2020
- TE Connectivity Lumawise type Z50 2213254-1
- TE Connectivity Lumawise type Z50 2213254-2
- Mounting with 2 self tapping screws M3 x 8mm
- Green indicator marks

# MechaTronix in LED

## ModuLED Micro Modular Passive Star LED Cooler ø86mm



### Mounting Options



#### Seoul Semiconductor ZC 25 / 40 LED COB

##### Model names

- SDW04F1C
- SDW84F1C
- SDW94F1C
- SDW05F1C
- SDW85F1C
- SDW95F1C

##### Mounting

- With Zhaga Book 3 LED holder  
BJB spotlight connector 47.319.2030
- Mounting with 2 self tapping screws M3 x 8mm
- Green indicator marks

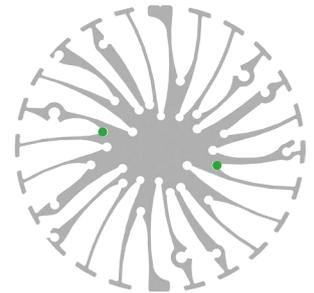
### Vossloh Schwabe LED Modules



Vossloh-Schwabe is an independent brand within the Panasonic Group responsible for the global development of the business area "Components for light technology". Panasonic employs 367,000 members of staff with an annual turnover of 76.75 billion Euros (8692.7 billion yen) and is represented throughout the world by more than 634 companies or representations in Asia, America and Europe. The Vossloh Schwabe Luga Shop LED modules are ideal solution for high-end luminaire designs where quality stands at the first place.

#### Mounting indicator marks overview

MechaTronix recommends the use of a high thermal conductive interface between the LED module and the LED cooler. Either thermal grease, a thermal pad or a phase change thermal pad thickness 0.1-0.15mm is recommended. Thermal pads or phase change thermal pads can be pre-applied from MechaTronix.



#### Luga Shop 2014 LED modules

##### Model names

- WU-M-484 / WU-M-461
- WU-M-485 / WU-M-462
- WU-M-486 / WU-M-464

##### Mounting

- Direct mounting with 2 self tapping screws M3 x 10mm
- Green indicator marks



#### Luga Shop 2014 Kit LED COB

##### Model names

- DMS088
- DMS128
- DMS158

##### Mounting

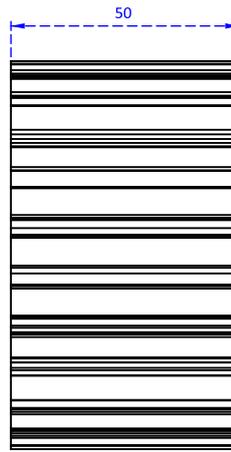
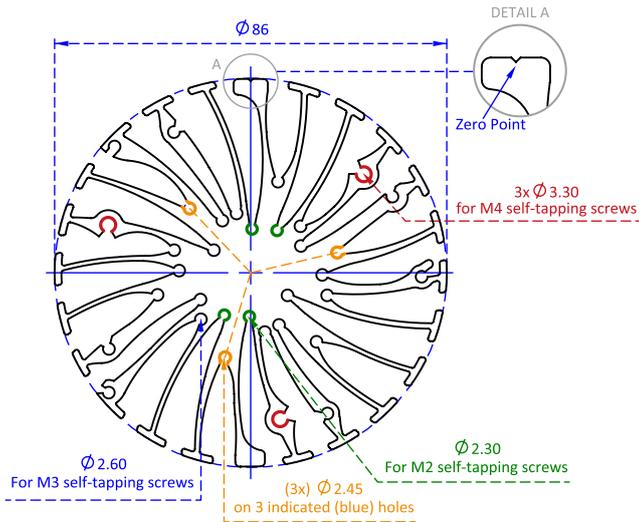
- With Luga Shop Kit holder
- Mounting with 2 self tapping screws M3 x 6mm
- Green indicator marks

# MechaTronix in LED

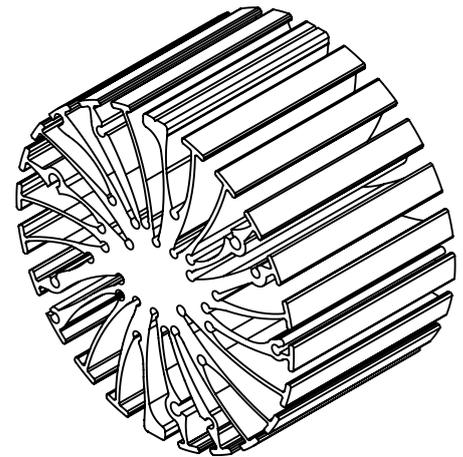
## ModuLED Micro Modular Passive Star LED Cooler $\phi 86\text{mm}$



### Drawings & Dimensions



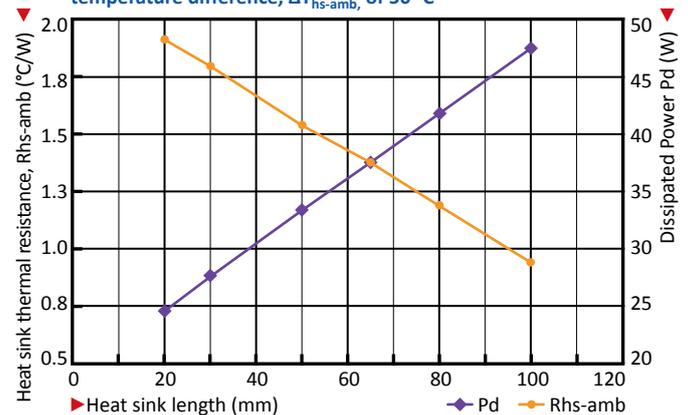
### Example: ModuLED Micro 8650



### Thermal Data

| $P_d = P_e \times (1 - \eta_L)$ | Heat sink to ambient thermal resistance $R_{hs-amb}$ ( $^{\circ}\text{C}/\text{W}$ ) |                    |                    | Heat sink to ambient temperature rise $T_{hs-amb}$ ( $^{\circ}\text{C}$ ) |                    |                    |
|---------------------------------|--|--------------------|--------------------|---|--------------------|--------------------|
|                                 | ModuLED Micro 8630   | ModuLED Micro 8650 | ModuLED Micro 8680 | ModuLED Micro 8630  | ModuLED Micro 8650 | ModuLED Micro 8680 |
| 5                               | 2.4  | 2.4                | 2.0                | 12  | 12                 | 10                 |
| 10                              | 2.2  | 2.0                | 1.7                | 22  | 20                 | 17                 |
| 15                              | 2.0  | 1.8                | 1.53               | 30  | 27                 | 23                 |
| 20                              | 1.9  | 1.7                | 1.4                | 38  | 34                 | 28                 |
| 25                              | 1.84   | 1.6                | 1.36               | 46  | 40                 | 34                 |
| 30                              | 1.76   | 1.53               | 1.3                | 53  | 46                 | 39                 |
| 35                              | -  | 1.48               | 1.25               | -   | 52                 | 44                 |
| 40                              | -  | 1.45               | 1.2                | -   | 58                 | 48                 |
| 45                              | -  | -                  | 1.17               | -   | -                  | 53                 |

ModuLED Micro performance data at a heat sink to ambient temperature difference,  $\Delta T_{hs-amb}$ , of  $50^{\circ}\text{C}$



Heat sink to ambient temperature rise  $T_{hs-amb}$  ( $^{\circ}\text{C}$ )

