

MechaTronix in LED

IceLED Seoul Semiconductor Active Star LED Cooler ø99mm



Features & Benefits

- The IceLED modular active LED coolers are specifically designed for luminaires using the Seoul Semiconductor LED COB. Mechanical compatibility with direct mounting of the LED modules to the LED cooler and thermal performance matching the lumen packages.
- For spot and downlight designs from 2,000 to 10,000 lumen
- Thermal resistance range Rth 0.46 - 0.58°C/W
- Modular design with mounting holes foreseen for Seoul Semiconductor ZC 25, ZC 40 COB LED Arrays, direct mounting or with Zhaga Book 3 LED holder.
- Diameter 99mm - Standard height 45mm & 55mm
Other heights on request
- Anti-vibration low-noise fan <21dB@1m
- High lifetime design >60Khrs (L 10 life time @40°C)
- Warranty 5 years



Order Information



SEOUL SEMICONDUCTOR

Example : IceLED 450

IceLED 1

- 1 Height (mm)
Overall height top to bottom
(Fan height 25mm)
IceLED 450 - 45mm
IceLED 550 - 55mm

IceLED is designed in this way
that you can mount various LED modules on the
same LED cooler

Simple mounting with self tapping screws

Recommended screw force 6lb/in

Screws are available from MechaTronix

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Product Details

| Model n° |  IceLED 450 |  IceLED 550 |
|---|---|---|
| Dimension (mm)* ¹ | ø99 x h45 | ø99 x h55 |
| Fan Voltage (Vdc)* ² | 12 | 12 |
| Fan Speed (RPM) | 1500 | 1500 |
| Noise @ 1m (dBA) | <21 | <21 |
| Weight (gr) | 223 | 249 |
| Thermal Resistance (°C/W)* ³ | 0.58 | 0.46 |
| Power Pd (W)* ⁴ | 85.5 | 109 |
| Heat Sink Material | AL6063-T5 | AL6063-T5 |

*¹ 3D files are available in ParaSolid, STP and IGS on request

*² The fan requires a constant voltage power source of 12Vdc, 50mA

*³ The thermal resistance R_{th} is determined with a calibrated heat source of 30mm x 30mm central placed on the heat sink, T_{amb} 40° and an open environment. Reference data @ heat sink to ambient temperature rise T_{hs-amb} 50°C
The thermal resistance of a LED cooler is not a fix value and will vary with the applied dissipated power Pd

*⁴ Dissipated power Pd. Reference data @ heat sink to ambient temperature rise T_{hs-amb} 50°C
The maximal dissipated power needs to be verified in function of required case temperature T_c or junction temperature T_j 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: $P_d = P_e \times (1 - \eta_L)$

Pd - Dissipated power

Pe - Electrical power

η_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.

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Mounting Options

The IceLED modular active 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 Seoul Semiconductor LED COB's which standard fit on the IceLED LED cooler.

MechaTronix performs thermal validation tests on each of the LED modules mounted on the LED cooler and publishes this data in the LED brand thermal validation reports.

For a full overview of available LED coolers for Seoul Semiconductor LED's, please refer to the Seoul Semiconductor LED cooler overview on www.led-heatsink.com/Download.php or scan the QR code here.



Seoul Semiconductor LED COB

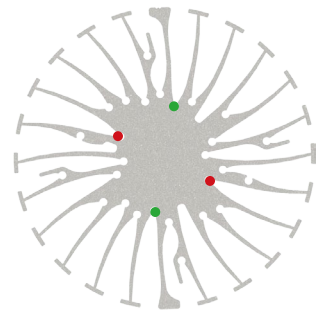


SEOUL SEMICONDUCTOR

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 25 / 40 LED COB

Model names

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

Mounting

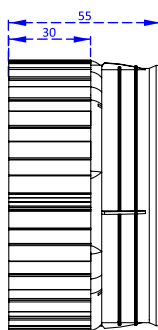
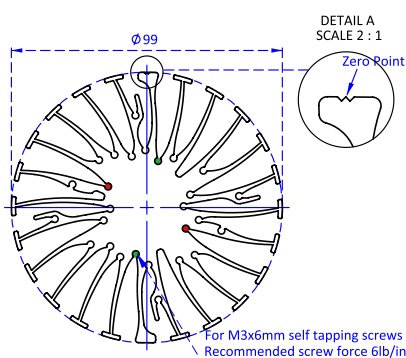
- Direct mounting with 2 self tapping screws M3 x 6mm
Red indicator marks
- With Zhaga Book 3 LED holder
BJB spotlight connector 47.319.2030
Mounting with 2 self tapping screws M3 x 8mm
Green indicator marks

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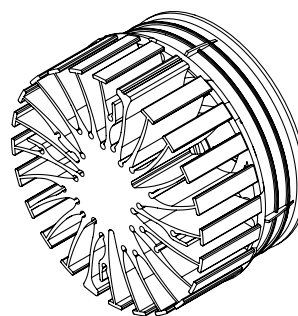
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Drawings & Dimensions



Example: IceLED 550

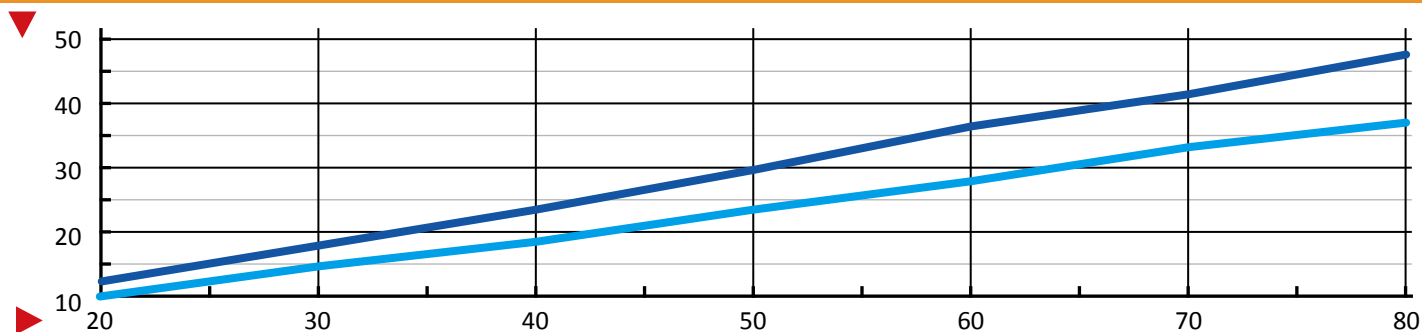


Thermal Data

| $Pd = Pe \times (1-\eta L)$ | | | LED Light efficiency, ηL (%) | | | Heat sink to ambient thermal resistance R_{hs-amb} (°C/W) | | Heat sink to ambient temperature rise T_{hs-amb} (°C) | |
|-----------------------------|----|-----------------------------|------------------------------------|-------|-------|--|------------|--|------------|
| | | | 17% | 20% | 25% | IceLED 450 | IceLED 550 | IceLED 450 | IceLED 550 |
| Dissipated Power $Pd(W)$ | 20 | Electrical Power $Pe(W)$ | 24.1 | 25.0 | 26.7 | 0.62 | 0.50 | 12 | 10 |
| | 25 | | 30.1 | 31.3 | 33.3 | 0.62 | 0.49 | 15 | 12 |
| | 30 | | 36.1 | 37.5 | 40.0 | 0.61 | 0.49 | 18 | 15 |
| | 35 | | 42.2 | 43.8 | 46.7 | 0.61 | 0.49 | 21 | 17 |
| | 40 | | 48.2 | 50.0 | 53.3 | 0.60 | 0.48 | 24 | 19 |
| | 50 | | 60.2 | 62.5 | 66.7 | 0.60 | 0.48 | 30 | 24 |
| | 60 | | 72.3 | 75.0 | 80.0 | 0.59 | 0.47 | 36 | 28 |
| | 70 | | 84.3 | 87.5 | 93.3 | 0.59 | 0.47 | 41 | 33 |
| | 80 | | 96.4 | 100.0 | 106.7 | 0.59 | 0.47 | 47 | 37 |

Heat sink to ambient temperature rise T_{hs-amb} (°C)

IceLED 450 IceLED 550



Dissipated Power P_d (W)