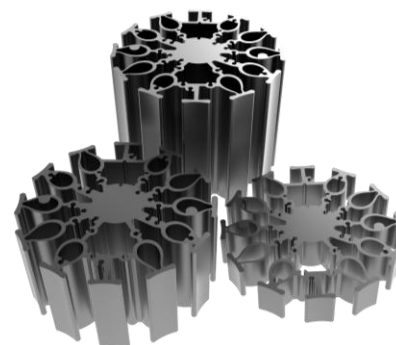


FanLED FanLED-96 Series Star Heat Sinks $\Phi 96\text{mm}$ for COB Modular Product Brief

Features VS Benefits

- * Mechanical compatibility with direct mounting of the LED modules to the LED cooler and thermal performance matching the lumen packages.
- * Thermal resistance range R_{th} (2.2°C/W ; 1.3°C/W ; 1.0°C/W).
- * Modular design with mounting holes foreseen for direct mounting of a wide range of LED modules and COB's:
- * Diameter 96mm - Standard height 20.0mm / 50.0mm / 80.0mm , Other heights on request.
- * Extruded from highly conductive aluminum.
- 2 standard colors - clear anodised - black anodised
- Zhaga Book 3 Spot Light Modules Edison ,Xicato ,Bridgelux , Osram ,Citizen ,Lumileds ,Cree , Tridonic , Vossloh-Schwabe ,Seoul ,LG ,Lustrous ,Prolight ,Samung ,SHARP , Luminus .Philips



- 1) Xicato XSM, XIM,XTM;(XSA-309;XSA-310)
- 2) Bridgelux ESS, ESR, Vero 10, Vero 13,Vero 18,Vero 29 V-series;
- 3) Citizen CLL022-CLU024, CLL032-CLU034,CLL040-CLU044;
- 4) Cree XLamp CXA13xx, CXA15xx,CXA18,CXA25;
- 5) Lumileds Luxeon COB's 1203, 1204, 1205, Luxeon K arrays K12, K16;
- 6) LG Innotek LEMWM18 27W, 24W, 40W;
- 7) Seoul Semiconductor ZC25, ZC40,ZC60, ZC100 Series;
- 8) Tridonic TALEXXmodule SLE Modules engines;
- 9) Luminus C##14 ,C##22COB LED engines.
- 10) Edison EdiLex SLM and EdiLex II COB LED engines;
- 11) GE lighting Infusion™ LED Modules.
- 12) Prolight Opto PABS, PABA, PACB, PANA;
- 13) SHARP Tiger Zenigataand and Mega Zenigata LED engines;
- 14) Samsung COB LC026B,LC033B,LC040BCOB LED engines;
- 15) Vossloh-Schwabe Vossloh-Schwabe LUGA Shop LED engines;
- 16) OSRAM PrevaLED Core,SOLERIQ P,SOLERIQ E and SOLERIQ S LED engines;
- 17) Lustrous M series, LUSTRON series, Coral series,LUSTRON 5 6 series LED engines;
- 18) Philips Fortimo SLM LED engines.

Order Information

Example:FanLED-9620-B-#

Example:FanLED-96 **1** - **2** - **3**

1 Hight (mm)

2 Anodising Color

B-Black

C-Clear

Z-Custom

3 Mounting Options - see graphics for details Combinations available

Ex.order code - 12

means option 1 and 2 combined

MingFa 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.

Notes:

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

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Http://www.mingfatech.com

The product data table



Brand	Mingfa Tech		
Series Name	FanLED star heat sinks		
Seriest Number	FanLED-96		
Manufacturing Technology	Aluminum extrusion		
Material	AL6063-T5		
Color & Finishing	Black Anodized		
Certification	CE, ROHS, WEEE		
Diameter(mm)	$\Phi 96$		
Height(mm)	20.0mm	50.0mm	80.0mm
Item Number	FanLED-9620	FanLED-9650	FanLED-9680
Max. Lumen	2900 lm	4500 lm	5600 lm
Dissipated Power (Ths-amb,50°C)	21.0 W	32.0 W	40.0 W
Thermal Resistance Rth (°C/W)	2.2°C/W	1.3°C/W	1.0°C/W
Cooling Surface Area (mm²)	40244.0 mm²	93676.2 mm²	147108.3 mm²
Net Weight (g)	124.8g	312g	499.2g
Quantity (pcs/CTN)	36 pcs	18 pcs	12 pcs
Modular Types	COB	COB	COB
For Environments	Indoor area		
For Lightings	Down lights,Architectural lights		
For Application	Retail & Hospitality,Mall & Food,Architectural & Museums,Office & Education, Station & Airport,Healthcare		
For LED brands	Adura,Bridgelux,BJB,Citizen,Cree,Edison,GE,LG,Lumileds,Lumens,Luminus,Ledil,Nichia, Osram,Philips,Prolight Opto,Samsung,Seoul,Sharp,Tridonic,Vossloh Schwabe,Xicato,Zhaga		

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

* The thermal resistance Rth is determined with a calibrated heat source of 14mm×14mm 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

* 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: $P_d = P_e \times (1 - \eta_L)$

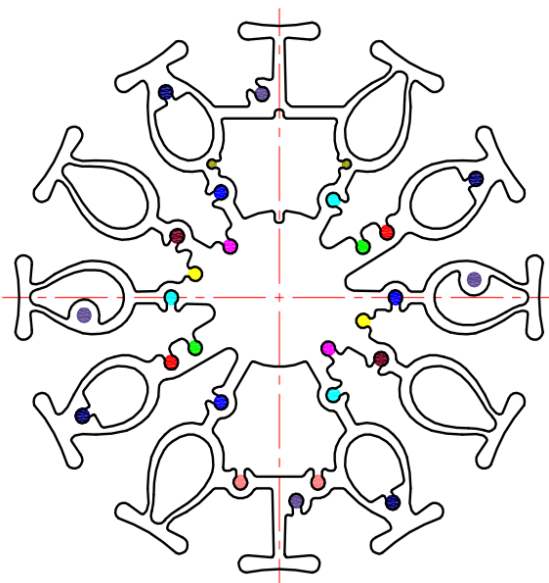
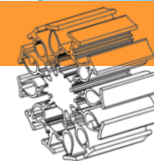
Pd - Dissipated power

Pe - Electrical power

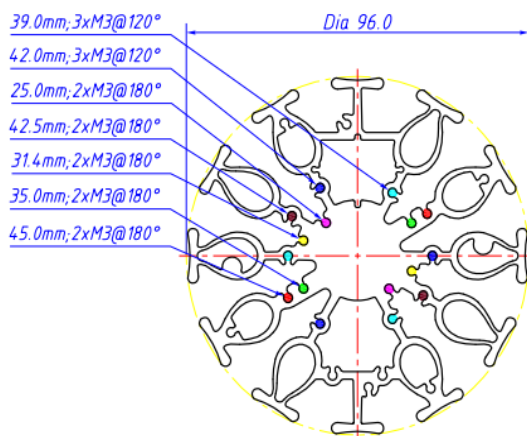
η_L = Light efficiency of the LED module

FanLED FanLED-96 Series $\Phi 96\text{mm}$ COB Heat Sink Drawings

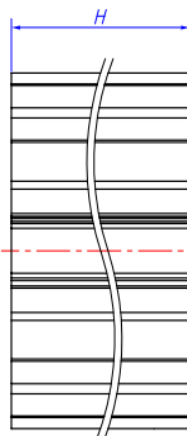
Drawings & Type Selection



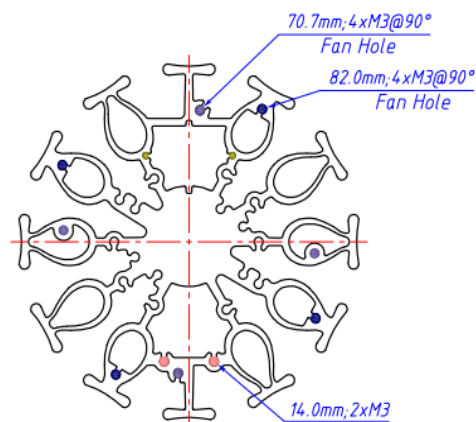
No.	Finish	Mounting hole
A1		25.0mm; 2xM3@180°
A2		31.4mm; 2xM3@180°
A3		35.0mm; 2xM3@180°
A4		39.0mm; 3xM3@120°
A5		42.0mm; 3xM3@120°
A6		42.5mm; 2xM3@180°
A7		45.0mm; 2xM3@180°
A8		70.7mm; 4xM3@90°
A9		82.0mm; 4xM3@90°
A10		14.0mm; 2xM3
A11		22.2mm; 2xM2



Bottom view

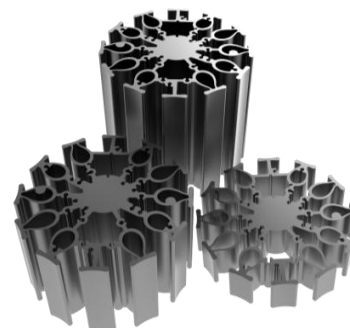
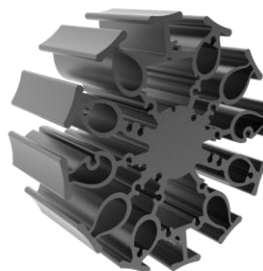
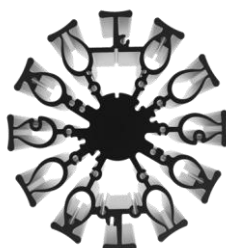


Side view



Top view

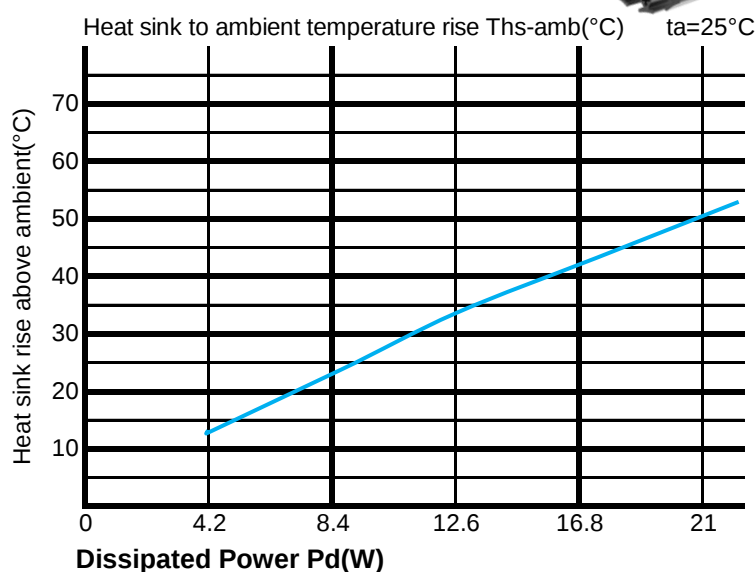
Product display



The thermal data table

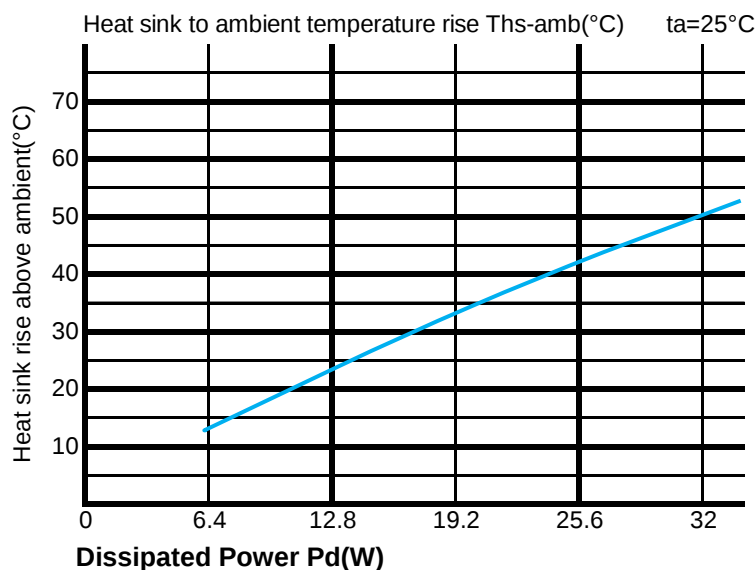
Fan-9620 thermal data

Pd = Pe x (1-ηL)		Heat sink to ambient thermal resistance Rhs-amb (°C/W)	Heat sink to ambient temperature rise Ths-amb (°C)
		FanLED-9620	FanLED-9620
Dissipated Power Pd(W)	4.2	3.1	14
	8.4	2.7	24
	12.6	2.5	34
	16.8	2.3	42
	21	2.2	50.5



Fan-9650 thermal data

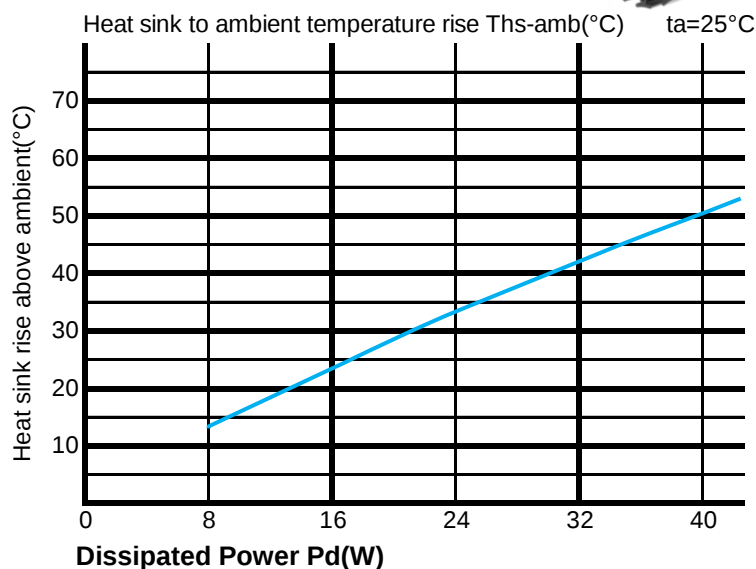
Pd = Pe x (1-ηL)		Heat sink to ambient thermal resistance Rhs-amb (°C/W)	Heat sink to ambient temperature rise Ths-amb (°C)
		FanLED-9650	FanLED-9650
Dissipated Power Pd(W)	6.4	1.9	14
	12.8	1.7	24
	19.2	1.5	33.5
	25.6	1.4	42
	32	1.3	50



The thermal data table

Fan-9680 thermal data

Dissipated Power Pd(W)	Pd = Pe x (1-ηL)	Heat sink to ambient thermal resistance Rhs-amb (°C/W)	Heat sink to ambient temperature rise Ths-amb (°C)
		FanLED-9680	FanLED-9680
8		1.5	14
16		1.3	24
24		1.2	34
32		1.1	42
40		1	50



* Please be aware the dissipated power Pd is not the same as the electrical power Pe of a LED module.

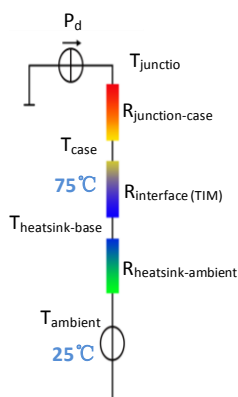
*To calculate the dissipated power please use the following formula: $P_d = P_e \times (1 - \eta_L)$.

Pd - Dissipated power ; Pe - Electrical power ; ηL = Light efficiency of the LED module;

*The aluminum substrate side of the package outer shell is thermally connected to the heat sink via TIM (Thermal interface material).

MingFa 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 resistance is a heat property and a measurement of a temperature difference by which an object or material resists a heat flow.

Geometric shapes are different, the thermal resistance is different. Formula: $\theta = (Ths - Ta) / Pd$

θ - Thermal Resistance [°C/W] ; Ths - Heatsink temperature ; Ta - Ambient temperature ;

*The thermal resistance between the junction section of the light-emitting diode and the aluminum substrate side of the package outer

shell is $R_{junction-case}$, the thermal resistance of the TIM outside the package is $R_{interface (TIM)}$ [°C/W], the thermal resistance with the

heat sink is $R_{heatsink-ambient}$ [°C/W], and the ambient temperature is $T_{ambient}$ [°C].

*Thermal resistances outside the package $R_{interface (TIM)}$ and $R_{heatsink-ambient}$ can be integrated

into the thermal resistance $R_{case-ambient}$ at this point. Thus, the following formula is also used:

$$T_{junction} = (R_{junction-case} + R_{case-ambient}) \cdot P_d + T_{ambient}$$