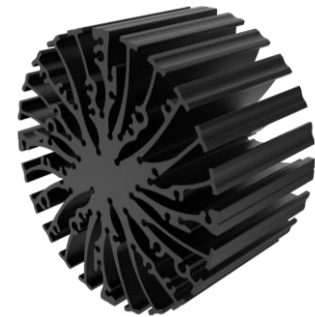


EtraLED

EtraLED-SAM-9650 Samsung Modular Passive Star Heat Sink Φ 96mm

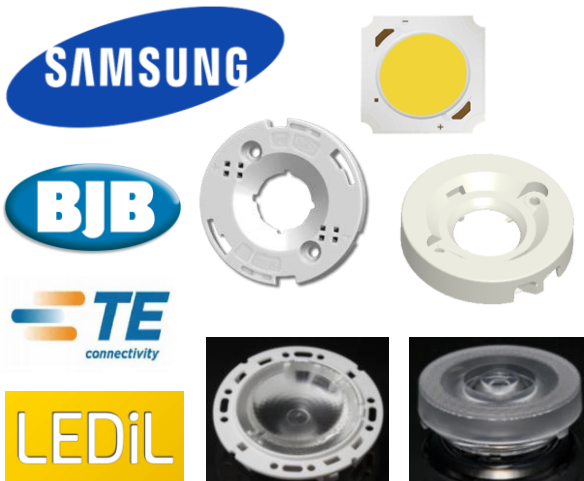
Features VS Benefits

- * The EtraLED-SAM-9650 Samsung Modular Passive Star LED Heat Sinks are specifically designed for luminaires using the Samsung LED engines.
- * Mechanical compatibility with direct mounting of the LED engines to the LED cooler and thermal performance matching the lumen packages.
- * For spotlight and downlight designs from 2000 to 5,100 lumen.
- * Thermal resistance range R_{th} 1.45°C/W.
- * Modular design with mounting holes foreseen for direct mounting of Samsung LED engines.
- * Diameter 96.0mm - standard height 50.0mm, Other heights on request.
- * Forged from highly conductive aluminum.



Zhaga LED engine and radiator assembly is a unified future international standardization

- * Below you find an overview of Samsung COB's and LED modules which standard fit on the star LED heat sinks.
- * In this way mechanical after work and related costs can be avoided, and lighting designers can standardize their designs on a limited number of star LED heat sinks.



Samsung LED Modules directly Mounting Options

Samsung B Series LED modules name:

L013B;
L019B;

With the Zhaga Book 11 holders for the red indicator marks.
BJB Holder: 47.319.6234.50;
Without the holders for the red indicator marks.
Direct mounting with machine screws M3x6.5mm.

Samsung D Series LED modules name:

LC003D; LC009D;
LC006D; LC013D;

With the Zhaga Book 11 holders for the red indicator marks.
BJB Holder: 47.319.6294.50;
TE LED Holder: 2213678-5;
Direct mounting with machine screws M3x6.5mm.

Samsung D Series LED modules name:

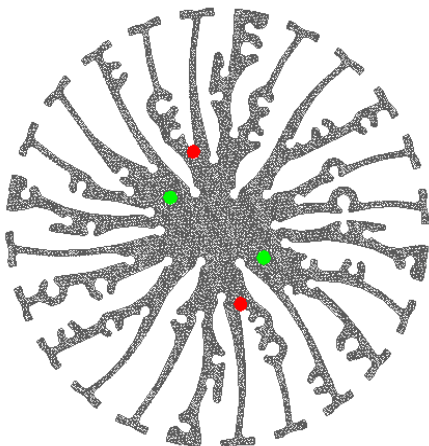
LC016D;
LC019D;
LC026D;

With the Zhaga Book 3 holders for the green indicator marks.
BJB Holder: 47.319.2021.50;
TE LED Holder: 2213254-1;
Direct mounting with machine screws M3x6.5mm.
With the LEDiL products:
Ronda series: FN15xxx;
Olivia series: FN14828-M; FN14637-S;

Samsung C Series LED modules name:

LC010C;
LC020C;

With the Zhaga Book 11 holders for the red indicator marks.
TE LED Holder: 2213118-2;
Direct mounting with machine screws M3x6.5mm.
With the LEDiL products:
Ronda series: FN15xxx;



EtraLED

EtraLED-SAM-9650 Samsung Modular Passive Star Heat Sink Φ 96mm

Mounting Options and Drawings & Dimensions

Example: EtraLED-SAM-9650-B-1,2

Example: EtraLED-SAM-96 **1** - **2** - **3**

1 Height (mm)

2 Anodising Color

B-Black

C-Clear

Z-Custom

3 Mounting Options - see graphics for details Combinations available

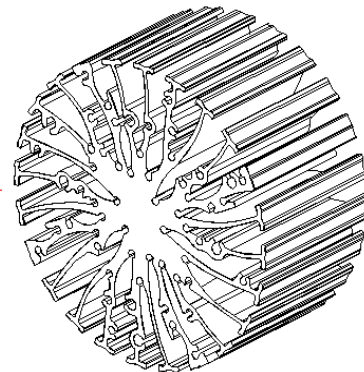
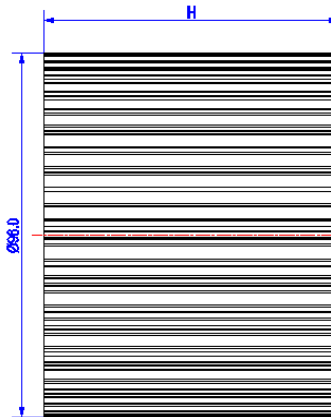
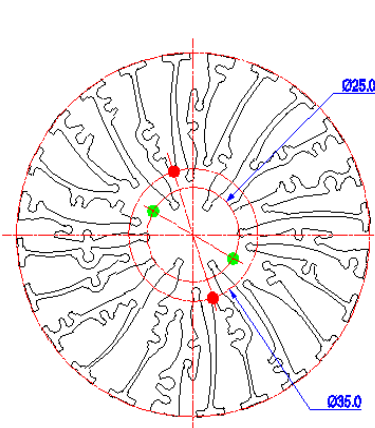
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means option 1 and 2 combined

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.

MOUNTING OPTION	Module type	Holder NO.	LEDiL products		THREAD	THREAD DEPTH	THREAD HOLE DISTANCE
			Olivia series	Ronda series			
N	/	None	None	None	None	None	None
1	L010C; L020C;	TE Holder 2213118-2	/	FN15xxx;	M3	6.5mm	25.0mm/ 2-@180° (Zhaga book 11)
	L003D; L006D; L009D; L013D;	BJB Holder 47.319.6294.50 TE Holder 2213678-5	FN14828-M; FN14637-S;	/			
	L013B; L019B;	BJB Holder 47.319.6234.50	/	/			
2	L016D; L018D; L026D;	BJB Holder 47.319.2021.50 TE Holder 2213254-1	FN14828-M; FN14637-S;		M3	6.5mm	35.0mm/ 2-@180° (Zhaga book 3)



EtraLED

EtraLED-SAM-9650 Samsung Modular Passive Star Heat Sink $\Phi 96\text{mm}$

The product data table

	Model No.	EtraLED-SAM-9650
	Heatsink Size	$\Phi 96 \times H50\text{mm}$
	Heatsink Material	AL6063-T5
	Finish	Black Anodized
	Weight (g)	458.0
	Dissipated power (T_{hs-amb}, 50°C)	34.5 (W)
	Cooling surface area (mm²)	114836
	Thermal Resistance (R_{hs-amb})	1.45 (°C/W)

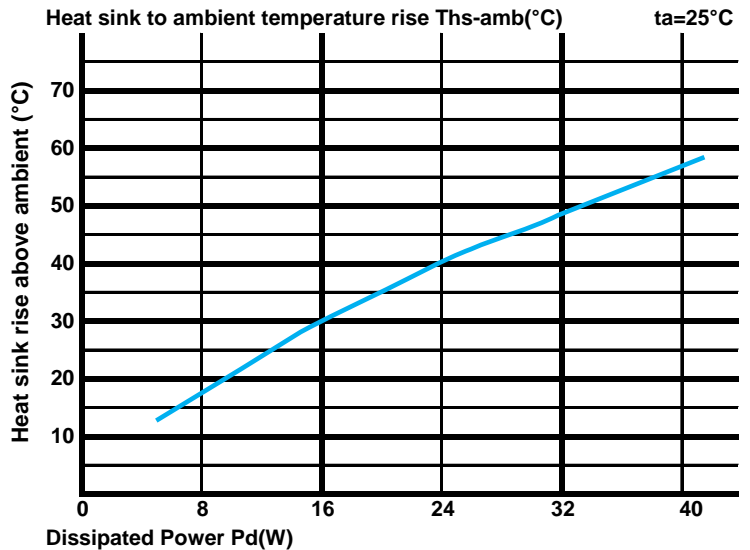
The thermal data table

* 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;

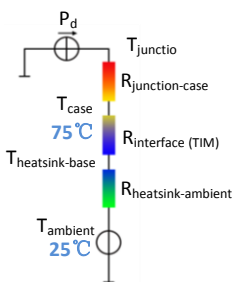
Dissipated Power Pd(W)	Pd = Pe x (1- η_L)	Heat sink to ambient thermal resistance R _{hs-amb} (°C/W)	Heat sink to ambient temperature rise Ths-amb (°C)
		EtraLED-SAM-9650	
8.0		2.25	18.0
16.0		1.88	30.0
24.0		1.67	40.0
32.0		1.50	48.0
40.0		1.40	56.0



*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: $\theta = (T_{hs} - T_a) / P_d$

θ - Thermal Resistance [°C/W]; T_{hs} - Heatsink temperature ; T_a - 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:

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