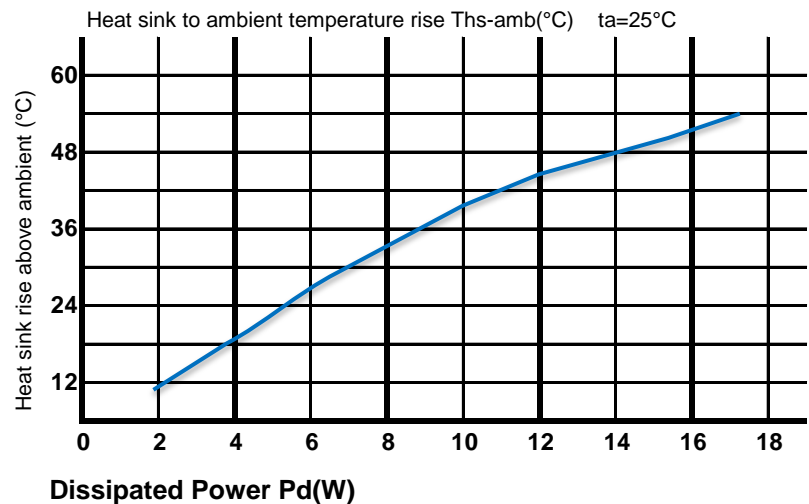


The thermal data table

$P_d = P_e \times (1 - \eta_L)$		Heat sink to ambient thermal resistance $R_{hs-amb} (^{\circ}C/W)$	Heat sink to ambient temperature rise $\Delta T_{hs-amb} (^{\circ}C)$
		Orbit-90	
Dissipated Power $P_d(W)$	2	5.15	10.7
	4	4.75	19.8
	6	4.47	28
	8	4.11	34.5
	10	3.96	41.6
	12	3.51	44.5
	15	3.06	48.9



\* Please be aware the dissipated power  $P_d$  is not the same as the electrical power  $P_e$  of a LED module.

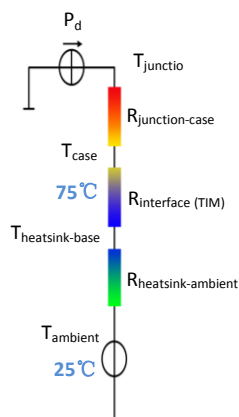
\*To calculate the dissipated power please use the following formula:  $P_d = P_e \times (1 - \eta_L)$ .

$P_d$  - Dissipated power ;  $P_e$  - Electrical power ;  $\eta_L$  = 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:  $\theta = (T_{hs} - T_a) / P_d$

$\theta$  - Thermal Resistance [ $^{\circ}C/W$ ];  $T_{hs}$  - 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  $R_{interface (TIM)}$  [ $^{\circ}C/W$ ], the thermal resistance

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

\*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:

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