
– THERMAL DATA –

# LPF11180-ZHE Zhaga Pin Fin LED Cooler ø111mm

## Product Details

| Model n° | LPF11180-ZHE |
| --- | --- |
| Dimension (mm)[*1] | ø111 x h80 |
| Volume (mm³) | 211924 |
| Cooling Surface (mm²) | 116830 |
| Weight (gr) | 572 |
| Thermal Resistance (°C/W)[*2] | 1.07 |
| Power Pd (W)[*3] | 50 |
| Heat Sink Material | AL1070 |

[*1] 3D files are avaliable in ParaSolid, STP and IGS on request

[*2] 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

[*3] 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 x (1-ηL)
Pd - Dissipated power
Pe - Electrical power
ηL = Light effciency 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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## Thermal Data

**The thermal performance of a LED cooler, expressed as Thermal Resistance Rth in K/W (or °C/W) tells you how many degrees Kelvin (or Celsius) the base of the LED cooler will incline per Watt of dissipated power Pd.**
**This dissipated power Pd is the heat loss a LED package or LED COB/LOB will create besides the efficient light generation.**
**Typically for white LED packages the efficiency varies with the color CCT and the CRI – values here below can be taken as a rule of thumb for white LED packages (phosphor corrected blue light)**

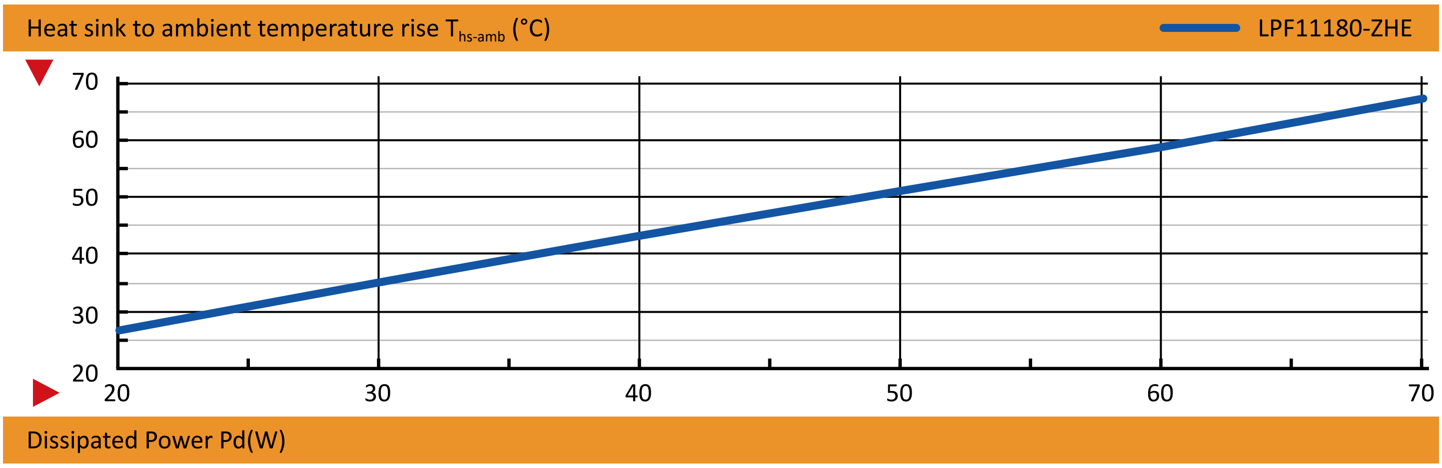
**CCT 4000 - 7000 and CRI 70 - 80 –> 35% efficiency –> 65% heat loss**
**CCT 2700 - 3000 and CRI 85 - 97 –> 30% efficiency –> 70% heat loss**

**For other LED packages like horticulture specific wave lengths or UV, we recommend you to look up the thermal efficiency in the datasheet or contact the supplier.**
**Keep in mind that for horticulture LED packages, example 660nm Deep Red, the thermal losses are drastically lower and can be as low as 40%, meaning you could almost use double the electrical power Pe on the same LED cooler for the same temperature rise dT.**

**Next the Thermal Resistance Rth is not a fix value – the nominal value we declare corresponds with a 50°C temperature rise – The table below explains the thermal resistance Rth for various dissipated power values.**
**In this way you can completely predict the temperature you are going to get in your LED luminaire.**

**Difficulties figuring it out – just let us know and our engineers will do the math for you.**

| *Pd = Pe x (1-ηL)* | | | LED Light efficiency, ηL (%) | | | Heat sink to ambient thermal resistance $R_{hs\text{-}amb}$ (°C/W) | Heat sink to ambient temperature rise $T_{hs\text{-}amb}$ (°C) |
|---|---|---|---|---|---|---|---|
| | | | 17% | 20% | 25% | LPF11180-ZHE | LPF11180-ZHE |
| Dissipated Power Pd(W) | 20 | Electrical Power Pe(W) | 24 | 25 | 26.66 | 1.25 | 27.0 |
| | 30 | | 36.14 | 37.5 | 40 | 1.18 | 35.2 |
| | 40 | | 48.19 | 50 | 53.33 | 1.12 | 43.3 |
| | 50 | | 60.24 | 62.5 | 66.66 | 1.06 | 51.4 |
| | 60 | | 72.28 | 75 | 80 | 1.00 | 59.6 |
| | 70 | | 84.33 | 87.5 | 93.33 | 0.94 | 67.7 |

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