



PCIe400 Thermal Model

Jean-Marc NAPPA on behalf of the LAPP team



Simulation PCIe400 / BOA

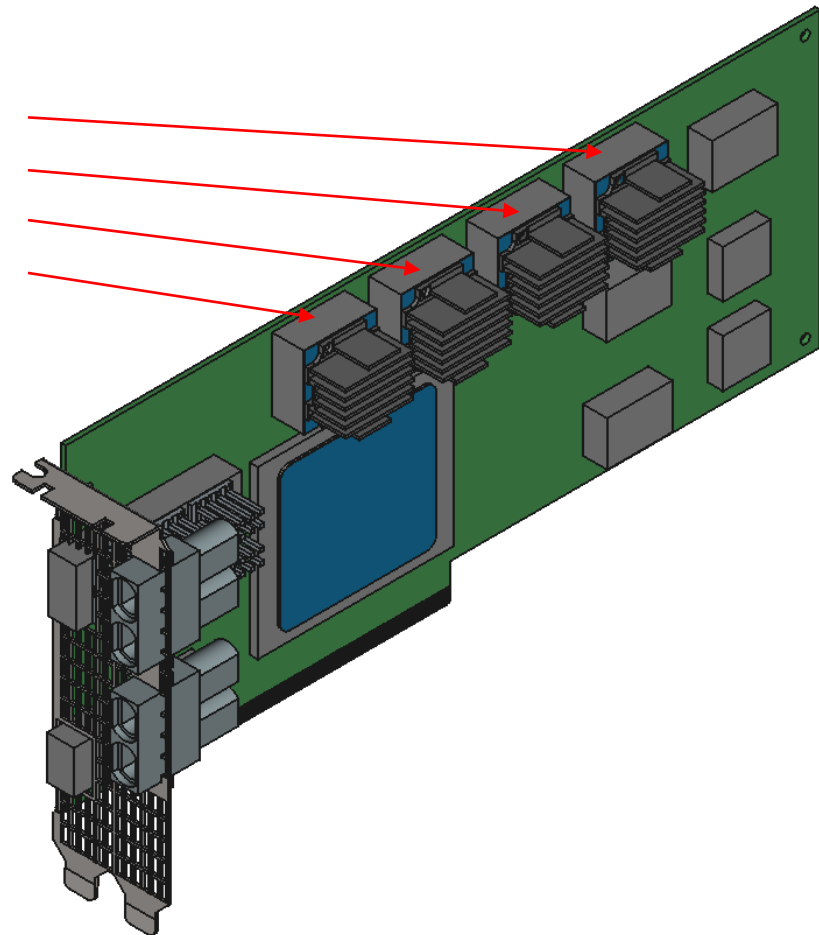
- Design : PCIe400-PROP3-3_4_v19.step
- XCVR Opto : Finisar BOA
- $k = 5 \text{ W/mK}$
- $P = 6.7 \text{ W}$
- $T_{\text{amb}} : 38^\circ\text{C}$
- Air Flow : 3 m/s

BOA #4

BOA #3

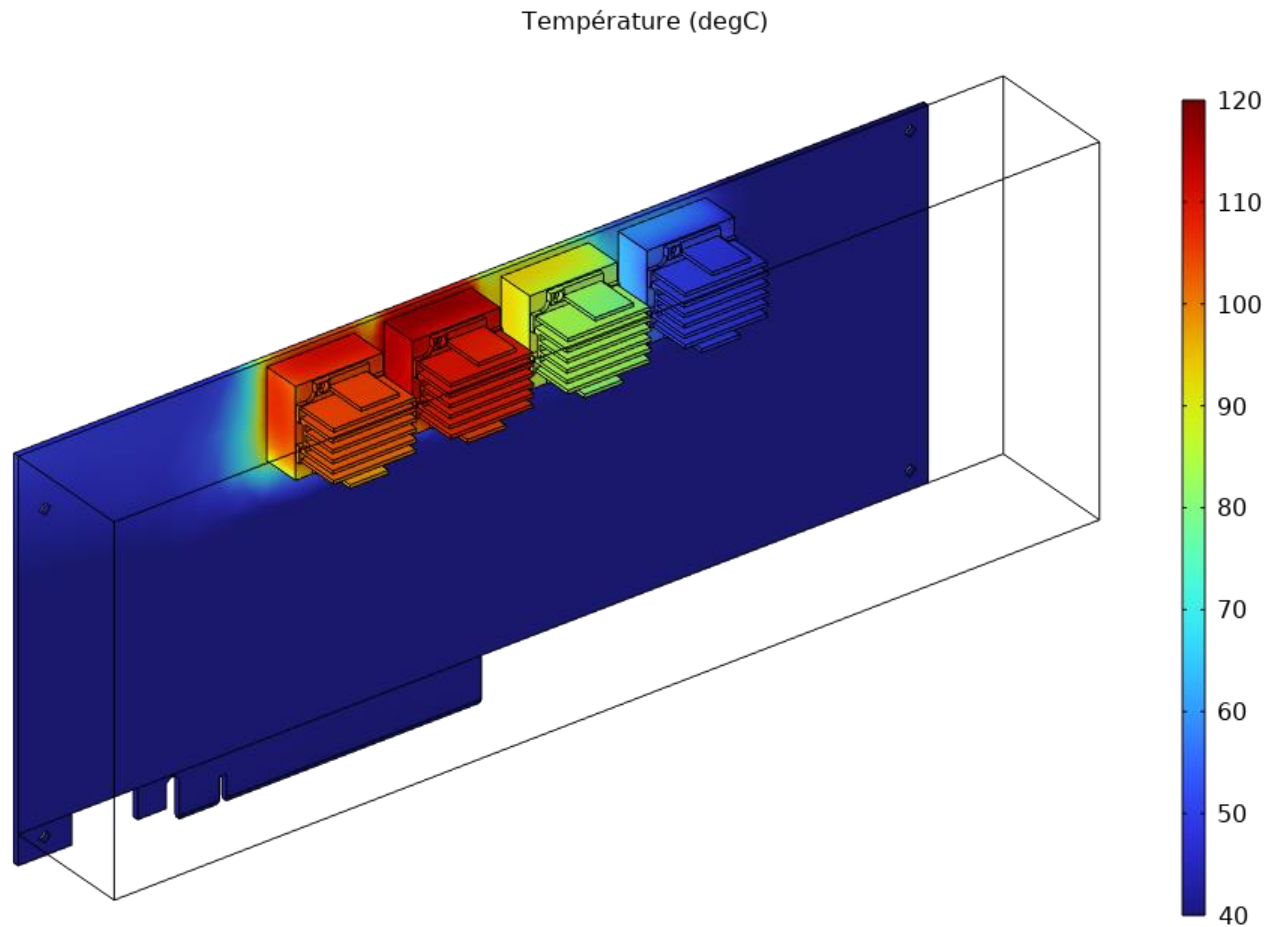
BOA #2

BOA #1



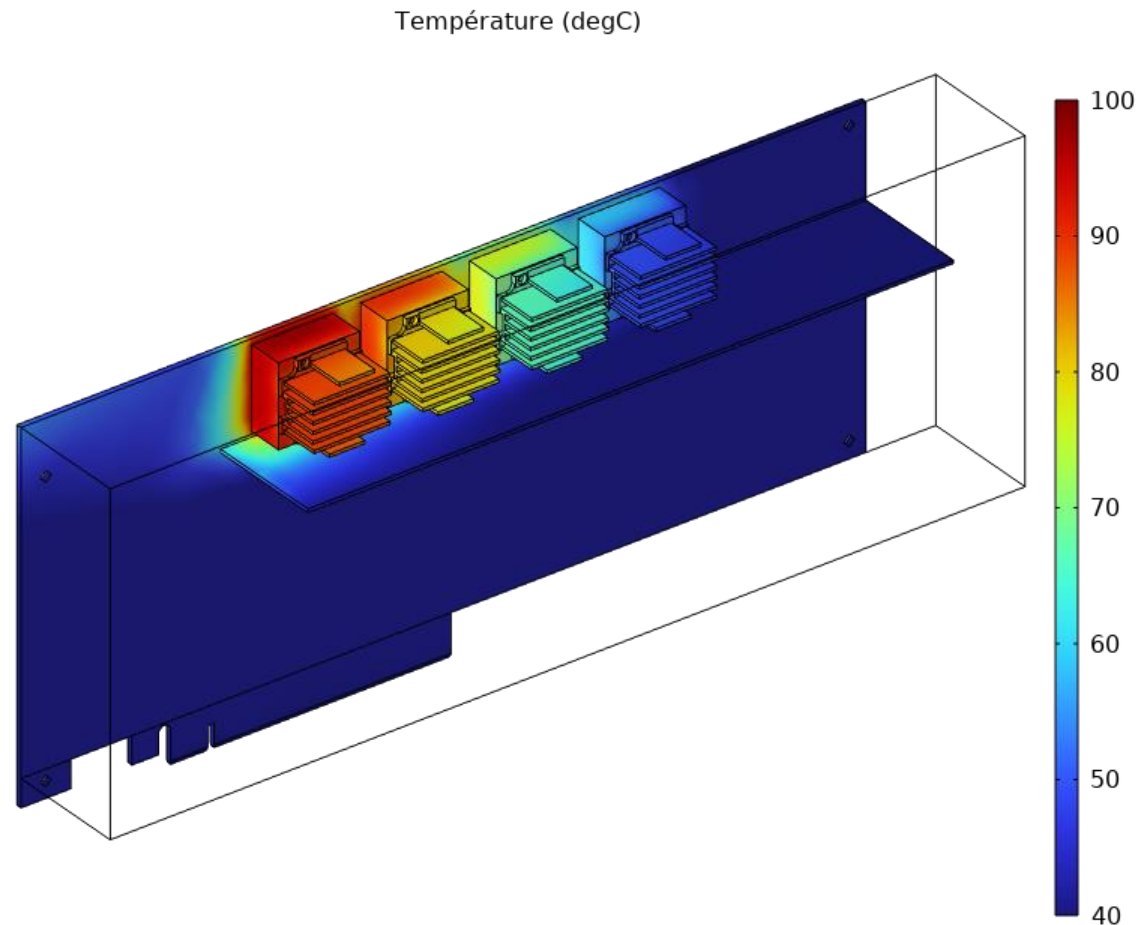
BOA & Fin Heatsink (10124588-2Y7)

- BOA #1 : $T_{\text{moy}} = 107\text{ }^{\circ}\text{C}$
- BOA #2 : $T_{\text{moy}} = 114\text{ }^{\circ}\text{C}$
- BOA #3 : $T_{\text{moy}} = 89\text{ }^{\circ}\text{C}$
- BOA #4 : $T_{\text{moy}} = 56\text{ }^{\circ}\text{C}$



BOA & Fin Heatsink (10124588-2Y7) & Barrier

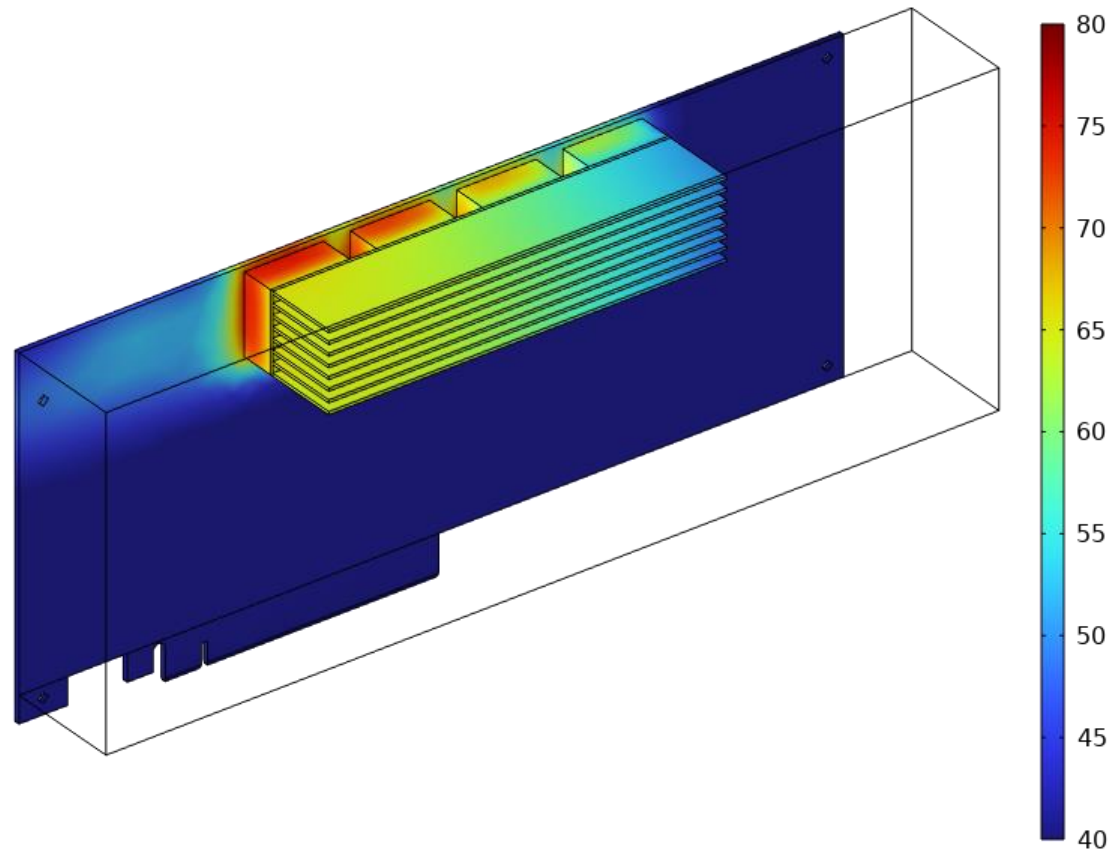
- BOA #1 : $T_{\text{moy}} = 95\text{ }^{\circ}\text{C}$
- BOA #2 : $T_{\text{moy}} = 87\text{ }^{\circ}\text{C}$
- BOA #3 : $T_{\text{moy}} = 73\text{ }^{\circ}\text{C}$
- BOA #4 : $T_{\text{moy}} = 56\text{ }^{\circ}\text{C}$



BOA & Fin Heatsink (122.5x24.4x24mm)

- BOA #1 : $T_{moy} = 72\text{ °C}$
- BOA #2 : $T_{moy} = 70\text{ °C}$
- BOA #3 : $T_{moy} = 65\text{ °C}$
- BOA #4 : $T_{moy} = 58\text{ °C}$

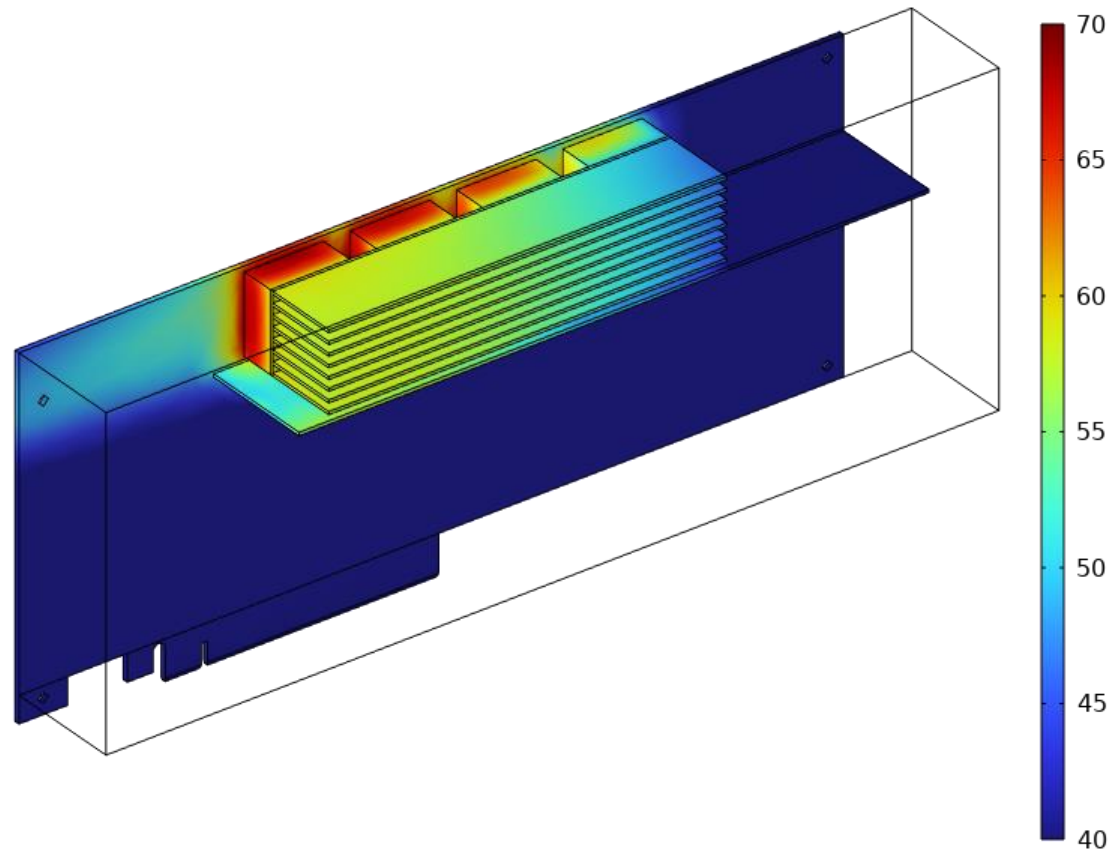
Température (degC)



BOA & Fin Heatsink (122.5x24.4x24mm) & Barrier

- BOA #1 : $T_{\text{moy}} = 66\text{ }^{\circ}\text{C}$
- BOA #2 : $T_{\text{moy}} = 64\text{ }^{\circ}\text{C}$
- BOA #3 : $T_{\text{moy}} = 61\text{ }^{\circ}\text{C}$
- BOA #4 : $T_{\text{moy}} = 56\text{ }^{\circ}\text{C}$

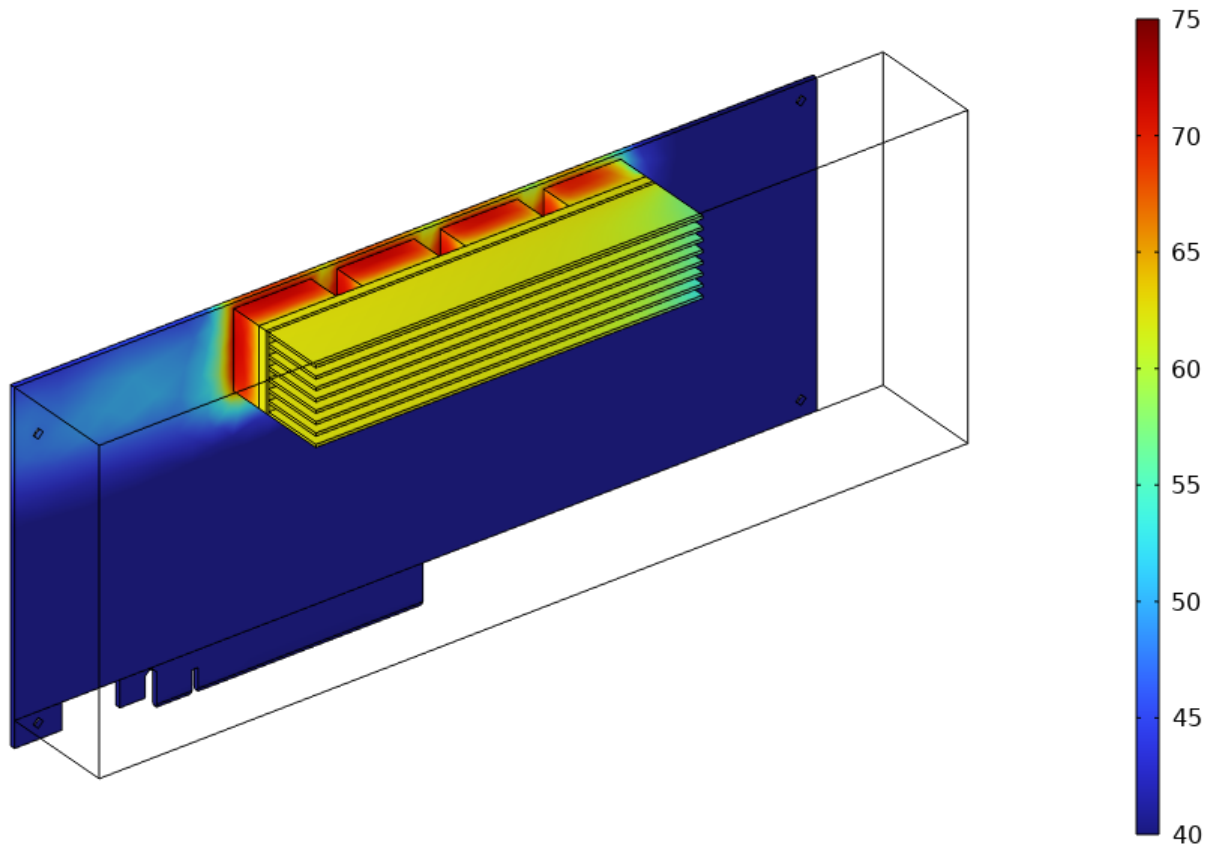
Température (degC)



BOA & Valor Chamber+Fin Heatsink (122.5x24.4x24mm)

- BOA #1 : $T_{\text{moy}} = 69.3\text{ }^{\circ}\text{C}$
- BOA #2 : $T_{\text{moy}} = 69.1\text{ }^{\circ}\text{C}$
- BOA #3 : $T_{\text{moy}} = 68.9\text{ }^{\circ}\text{C}$
- BOA #4 : $T_{\text{moy}} = 66.9\text{ }^{\circ}\text{C}$

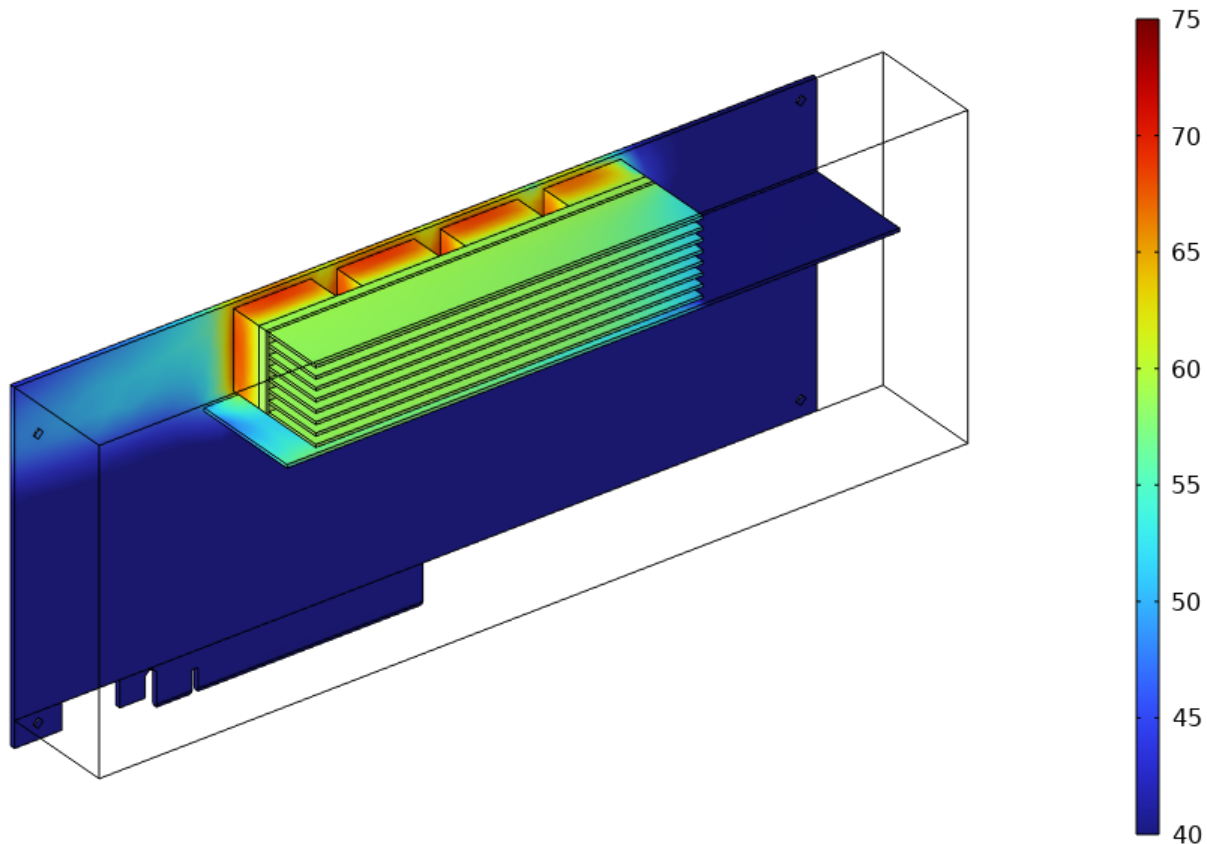
Température (degC)



BOA & Valor Chamber+Fin Heatsink (122.5x24.4x24mm) & Barrier

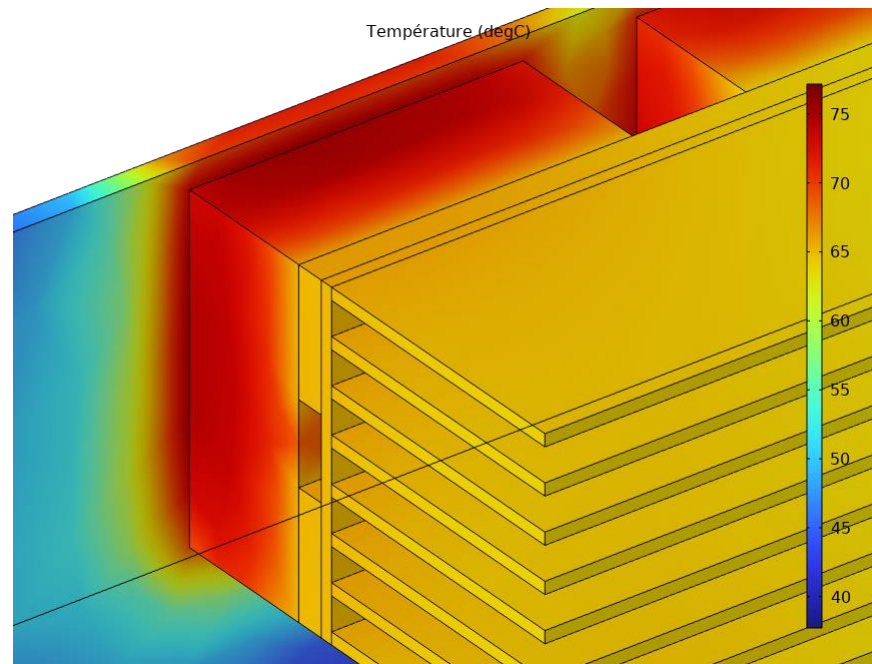
- BOA #1 : $T_{\text{moy}} = 65.7 \text{ }^{\circ}\text{C}$
- BOA #2 : $T_{\text{moy}} = 65.6 \text{ }^{\circ}\text{C}$
- BOA #3 : $T_{\text{moy}} = 65.5 \text{ }^{\circ}\text{C}$
- BOA #4 : $T_{\text{moy}} = 64.1 \text{ }^{\circ}\text{C}$

Température (degC)



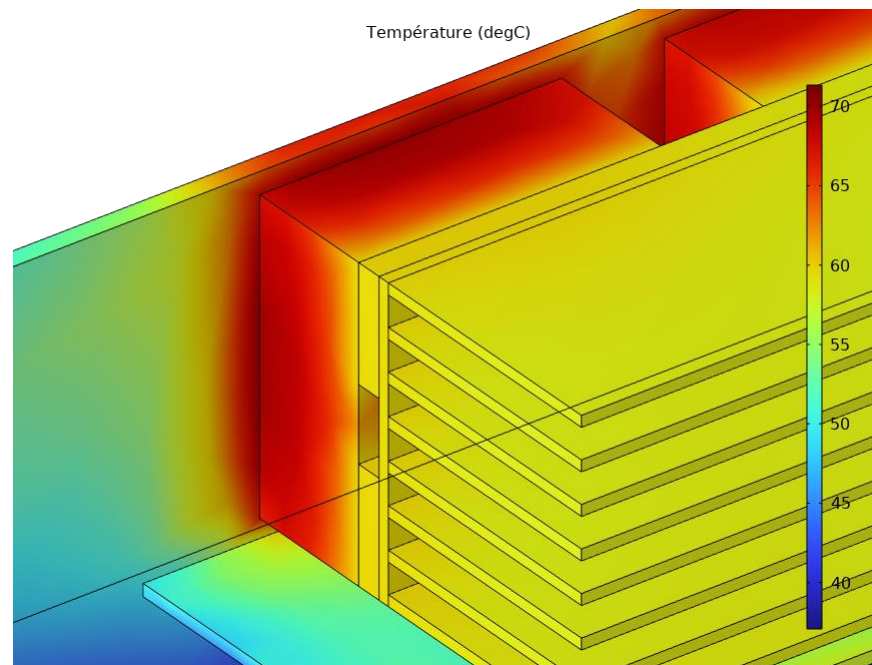
BOA & Fin Heatsink (122.5x24.4x24mm) with Optical Guide

- BOA #1 : $T_{\text{moy}} = 72.5\text{ }^{\circ}\text{C}$
- BOA #2 : $T_{\text{moy}} = 70.3\text{ }^{\circ}\text{C}$
- BOA #3 : $T_{\text{moy}} = 66\text{ }^{\circ}\text{C}$
- BOA #4 : $T_{\text{moy}} = 59.2\text{ }^{\circ}\text{C}$



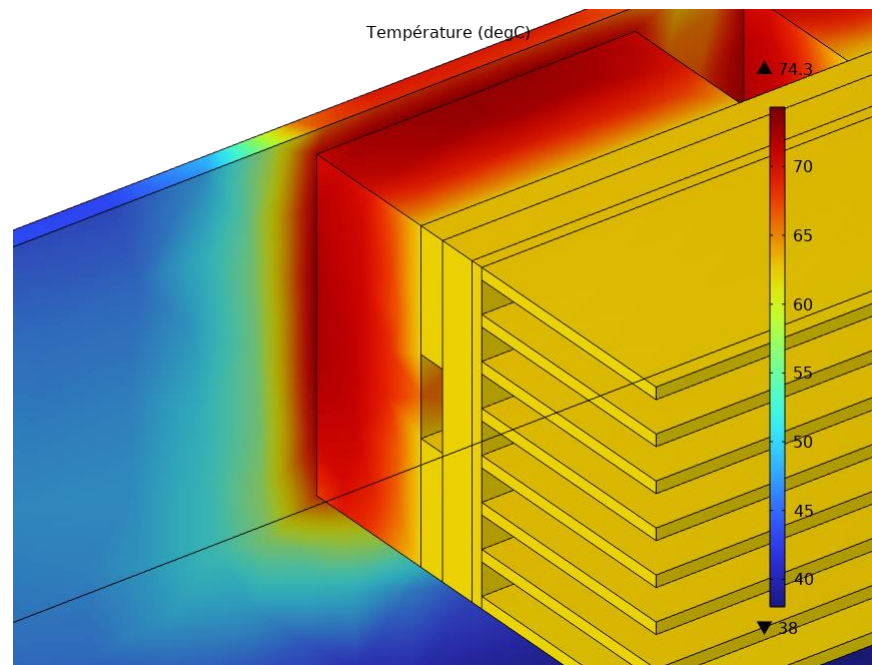
BOA & Fin Heatsink (122.5x24.4x24mm) & Barrier with Optical Guide

- BOA #1 : $T_{\text{moy}} = 66.9\text{ }^{\circ}\text{C}$
- BOA #2 : $T_{\text{moy}} = 65.6\text{ }^{\circ}\text{C}$
- BOA #3 : $T_{\text{moy}} = 62.4\text{ }^{\circ}\text{C}$
- BOA #4 : $T_{\text{moy}} = 56.9\text{ }^{\circ}\text{C}$



BOA & Valor Chamber+Fin Heatsink (122.5x24.4x24mm) with Optical Guide

- BOA #1 : $T_{moy} = 69.8\text{ }^{\circ}\text{C}$
- BOA #2 : $T_{moy} = 69.7\text{ }^{\circ}\text{C}$
- BOA #3 : $T_{moy} = 69.5\text{ }^{\circ}\text{C}$
- BOA #4 : $T_{moy} = 67.2\text{ }^{\circ}\text{C}$



BOA & Valor Chamber+Fin Heatsink (122.5x24.4x24mm) & Barrier with Optical Guide

- BOA #1 : $T_{moy} = 66.9\text{ }^{\circ}\text{C}$
- BOA #2 : $T_{moy} = 67.0\text{ }^{\circ}\text{C}$
- BOA #3 : $T_{moy} = 66.8\text{ }^{\circ}\text{C}$
- BOA #4 : $T_{moy} = 65.1\text{ }^{\circ}\text{C}$

