



THERMAL MODEL

PKU4911D

PKU4917VD



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General

The model is an estimation of the thermal behavior of PKU4911D and PKU4917VD.

The model is intended for steady-state thermal simulations.

Model Description

The model is a readymade Flotherm 2024 model provided as a pdml-file to be imported as an assembly.

3D CAD Geometry

In the geometry most components are maintained per the original design, but some have been simplified in FloMCAD to cuboids and some simplified to 2-Resistor Models. For the accuracy of the simulation, the PCB imported traces and vias by importing EDA files. The glue has a great influence on heat dissipation, so the laying of glue is reasonably simplified according to the actual situation.

Unit in file: [mm]

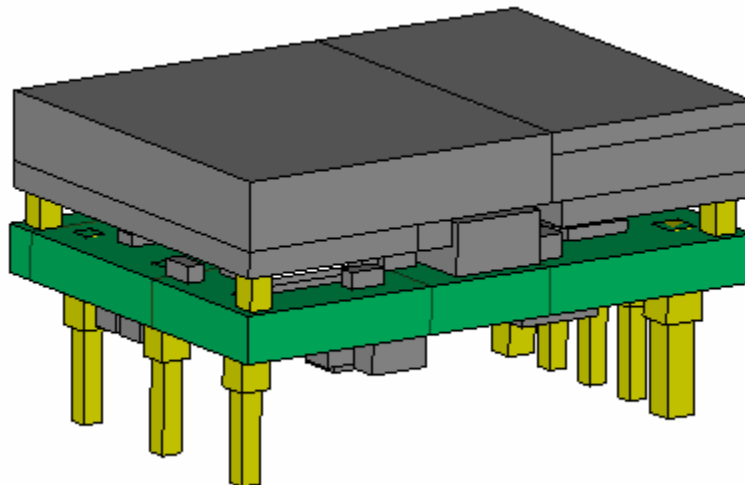


Figure 1

Domains of power loss distribution

There are several sources for power loss, partly assigned by Sources, partly assigned by Cuboids, and partly by 2-Resistor Models. The power loss for each of them are given in [Appendix 1 - Power Loss Distribution](#)

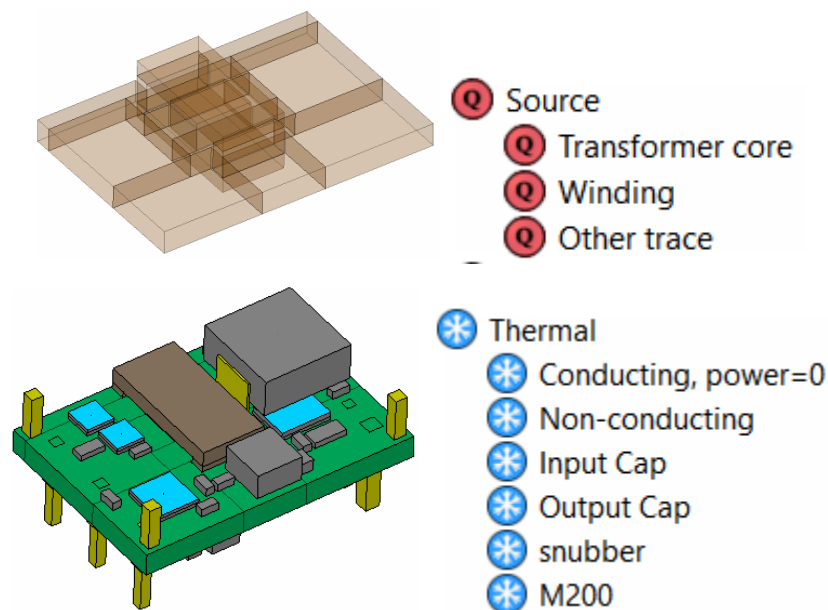


Figure 2 Domains of power losses

Domains of material data

There are several material domains. The heat conductivity for each of them is given either as isotropic, or anisotropic values in x-, y-, and z-direction.

Note. The given heat conductivity is only intended to model the temperature distribution of the module in this application. The values should not be treated as physical true or transferable to other applications.

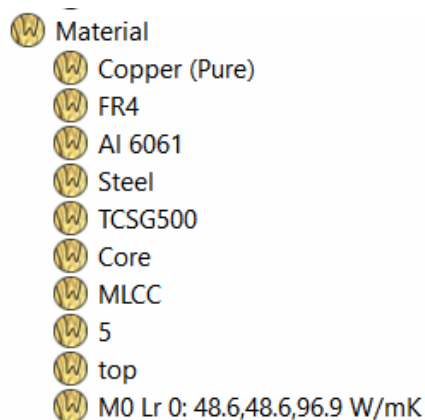


Figure 3: Materials

Model Usage

Import the PDM file to your system thermal model.



Assign power losses per table in [Appendix 1 - Power Loss Distribution](#) to the sources in section *Domains of power loss distribution*. Default settings are for $V_{in}=48[V]$, $V_{out}=5[V]$, $I_{out}=20[A]$, $T\approx 100[C]$

Do not change the order of power sources and geometry objects, as this can change the power and material settings.

The module temperatures can be monitored in predefined monitor points, which corresponds to the measured points in the thermal verification. These temperatures are not intended for pass/fail criteria.

Additional Information

Model has been constructed with SI units.

Reference

Flotherm model PKU4911D and PKU4917D.pdml

Product number

PKU4911D and PKU4917VD

Disclaimer

The model and model documentation described herein are provided for the sole purpose of facilitating thermal modeling of a structure where the referenced product is included. It should not and cannot be interpreted neither as a detailed description of the product itself, nor as a statement of the product's performance.

The model has been constructed on a best effort basis, but we cannot accept liability for any discrepancy between model predictions and actual values.

Revision history

Revision	Revision information	Date
A	New document	2025-09-12

Appendix 1 - Power Loss Distribution

Power loss example for PKU-D for $V_{in}=48[V]$, $V_{out}=5[V]$, $I_{out}=20[A]$, $T \approx 100[C]$

Sources	Part	Number of Parts	Per part [W]	Total [W]
Transformer winding	-	1	1.609	1.609
Transformer core	M300	1	0.423	0.423
SR	T201, T202	2	0.61	1.22
Primary MOS	T1, T2	2	0.627	1.254
Input cap	C2,C3,C4,C5,C6	5	0.01	0.05
Output cap	C215	1	0.01	0.01
Snubber	N230, N202	2	0.219	0.438
PCB trace	-	1	0.397	0.397
Lo	M200	1	1.226	1.226
Total				6.627