

Thermal Model of EPC2121



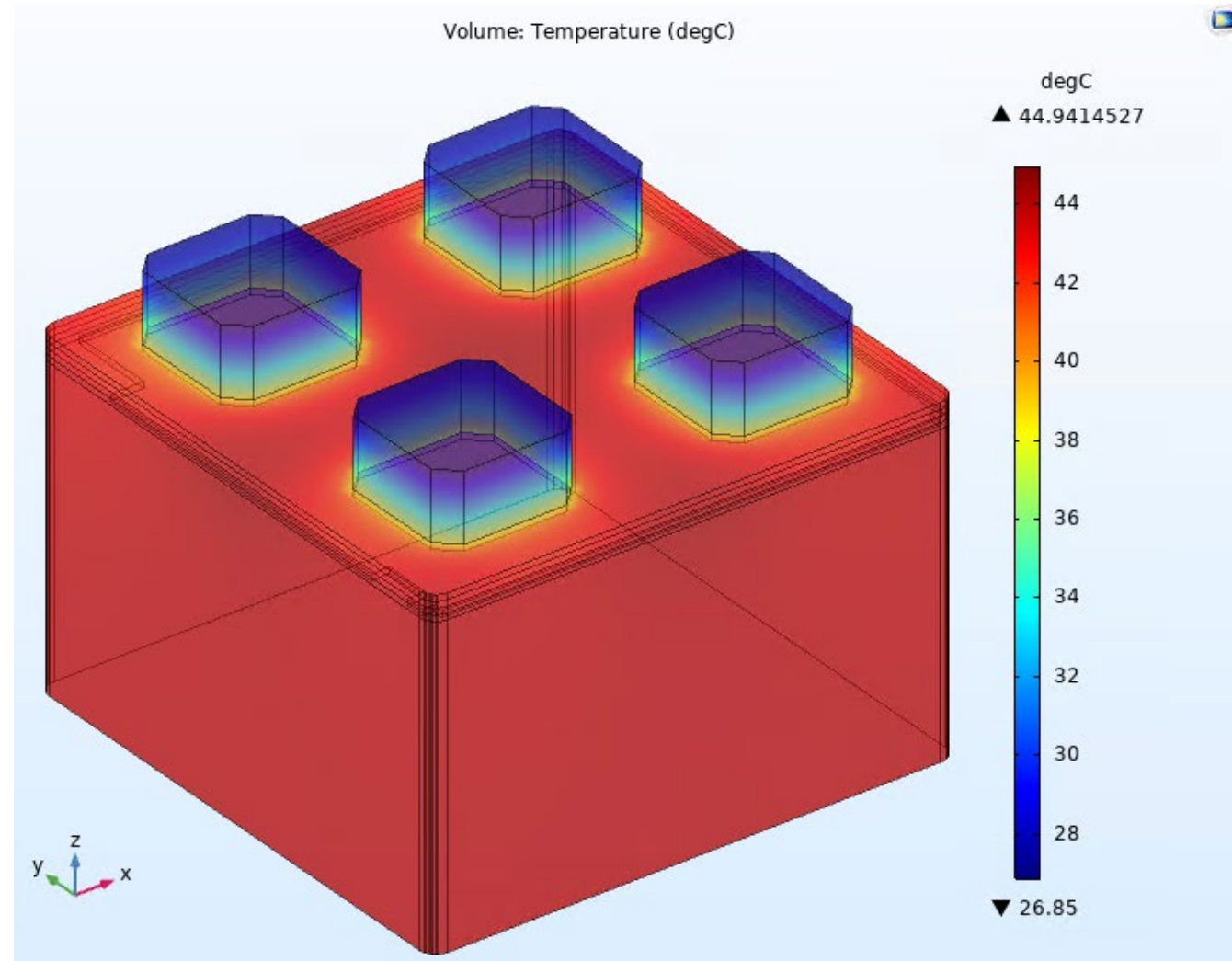
EPC2121 FEA thermal simulation



- The thermal model applies to EPC2121.
- A power dissipation of 1 W in the device active area is assumed.
- Finite element analysis (FEA) thermal simulations
 - $R_{\Theta JB}$ and $R_{\Theta JC}$ are obtained by stationary simulations.
 - $Z_{\Theta JB}$ and $Z_{\Theta JC}$ are obtained by transient simulations.
- R-C thermal model is generated.

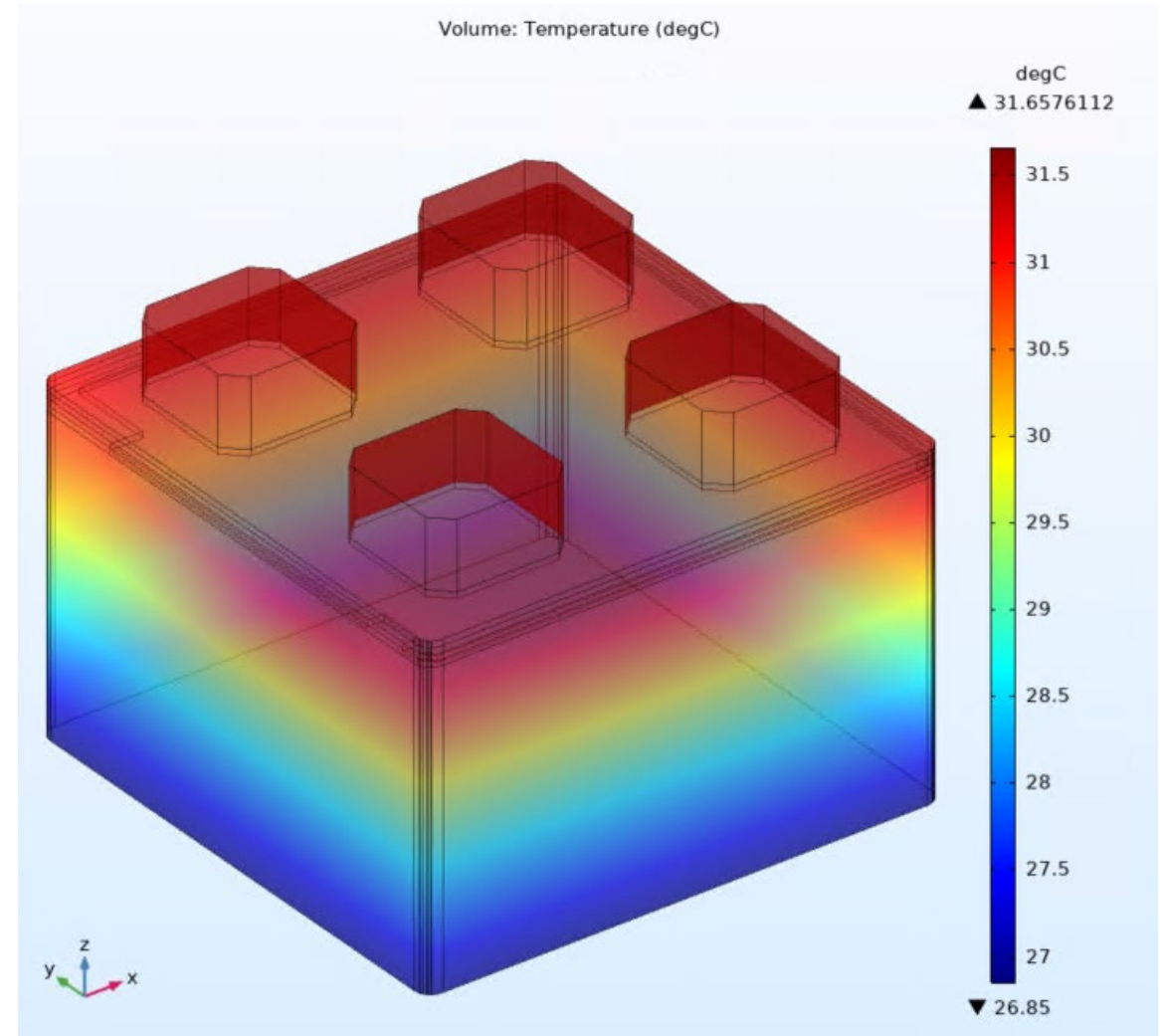
Steady-state $R_{\Theta JB}$

- Example: $P = 1 \text{ W}$



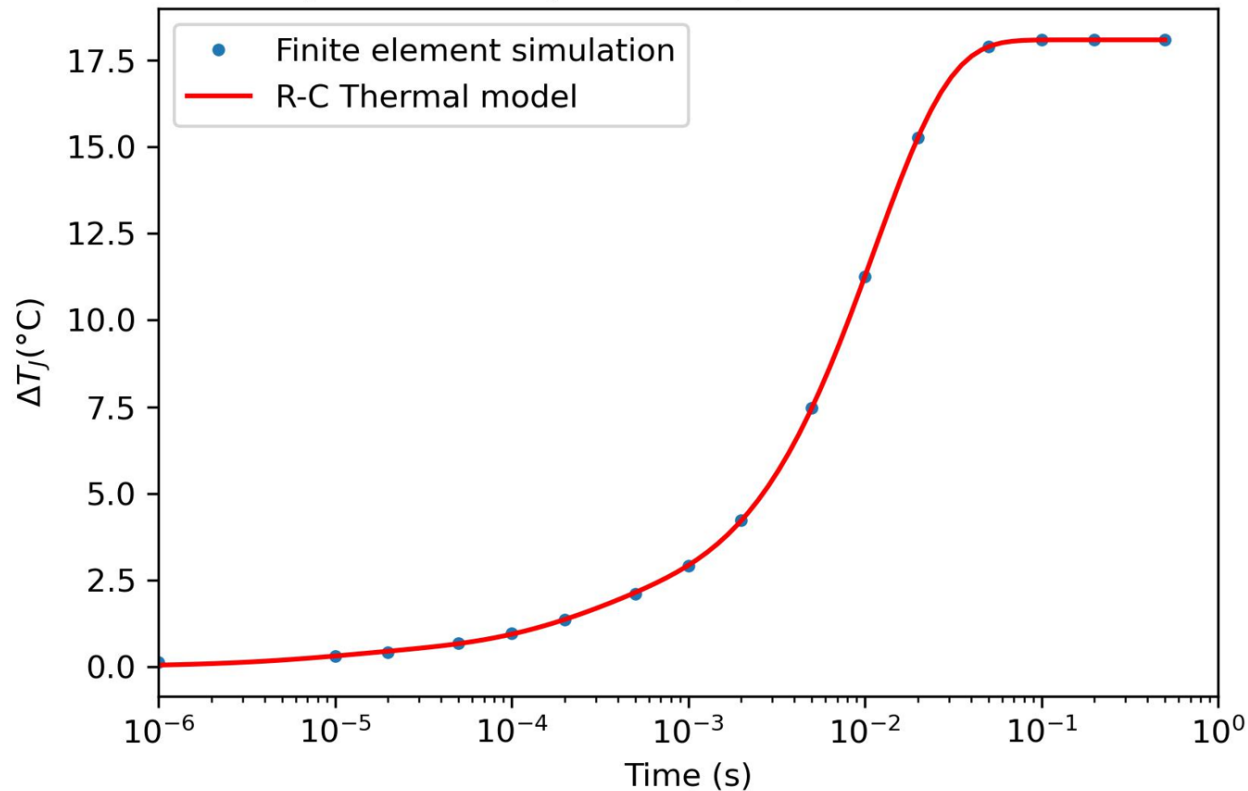
Steady-state $R_{\theta Jc}$

- Example: $P = 1 \text{ W}$

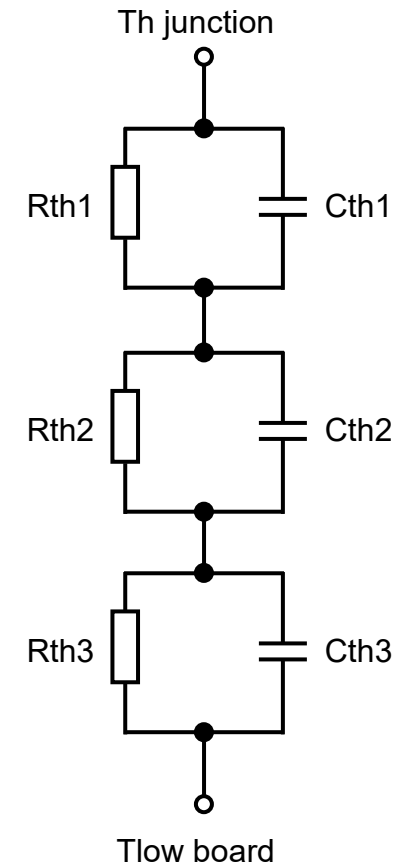


$Z_{\Theta JB}$ R-C thermal model

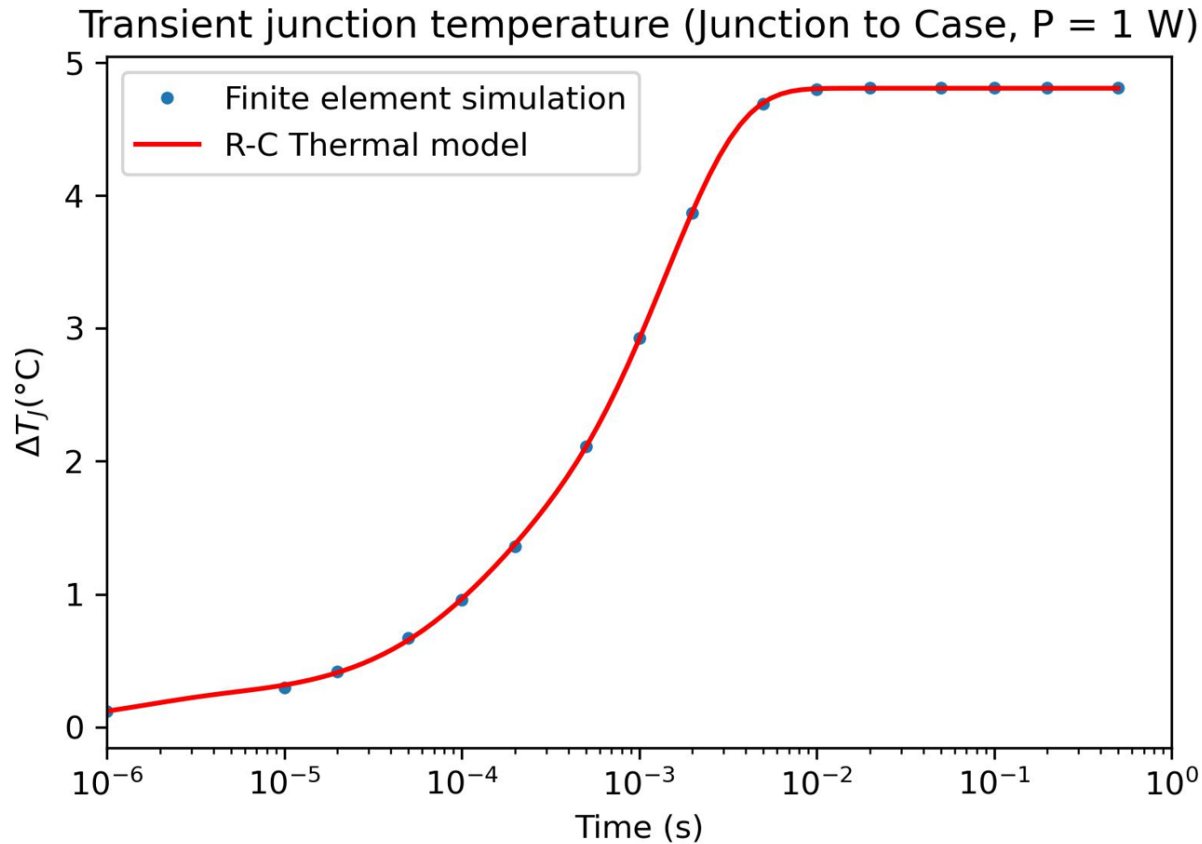
Transient junction temperature (Junction to Board, P = 1 W)



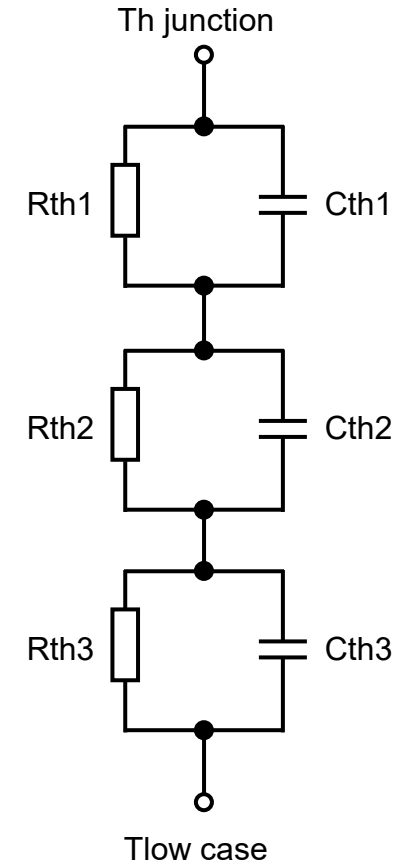
Model Parameter	Value	Unit
Rth1	3.37E-01	°C/W
Rth2	1.19E+00	
Rth3	1.66E+01	
Cth1	2.44E-05	J/°C
Cth2	1.75E-04	
Cth3	6.82E-04	



$Z_{\Theta JC}$ R-C thermal model



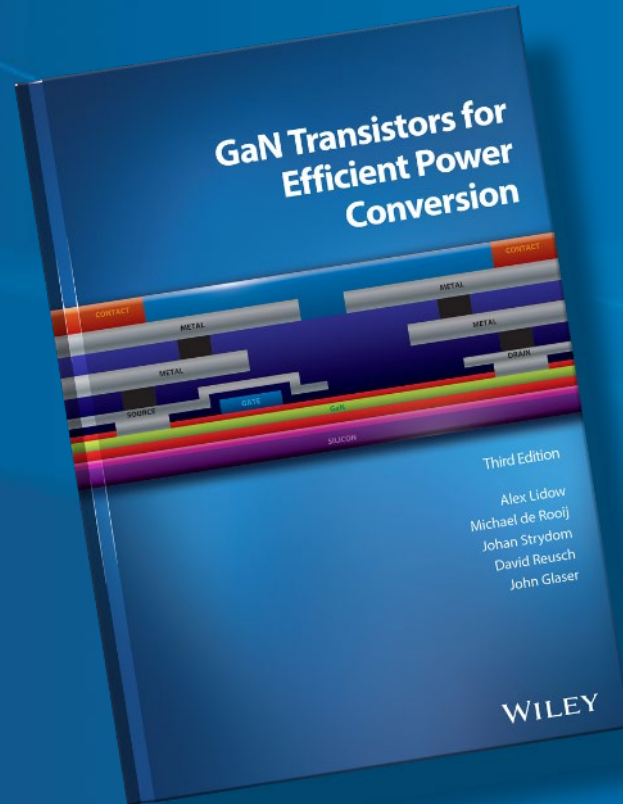
Model Parameter	Value	Unit
Rth1	2.14E-01	°C/W
Rth2	7.37E-01	
Rth3	3.86E+00	
Cth1	6.55E-06	J/°C
Cth2	1.27E-04	
Cth3	3.64E-04	



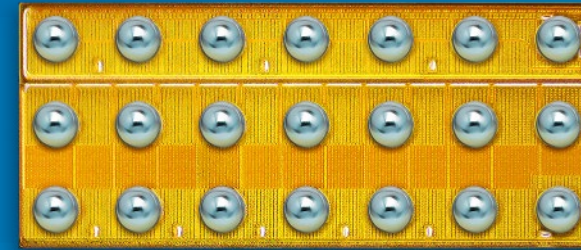


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