

Thermal Model of EPC2050



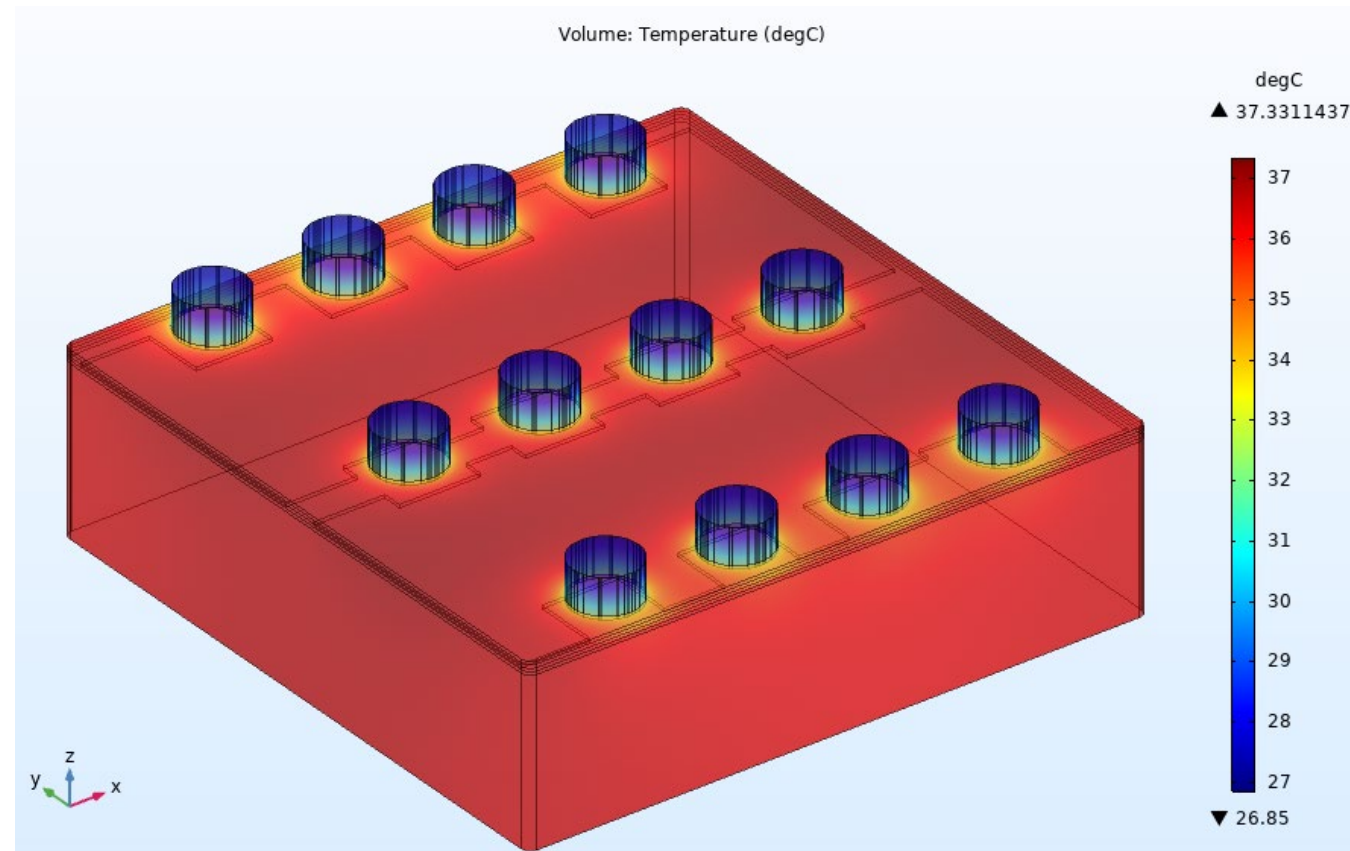
EPC2050 FEA thermal simulation



- The thermal model applies to EPC2050.
- 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.

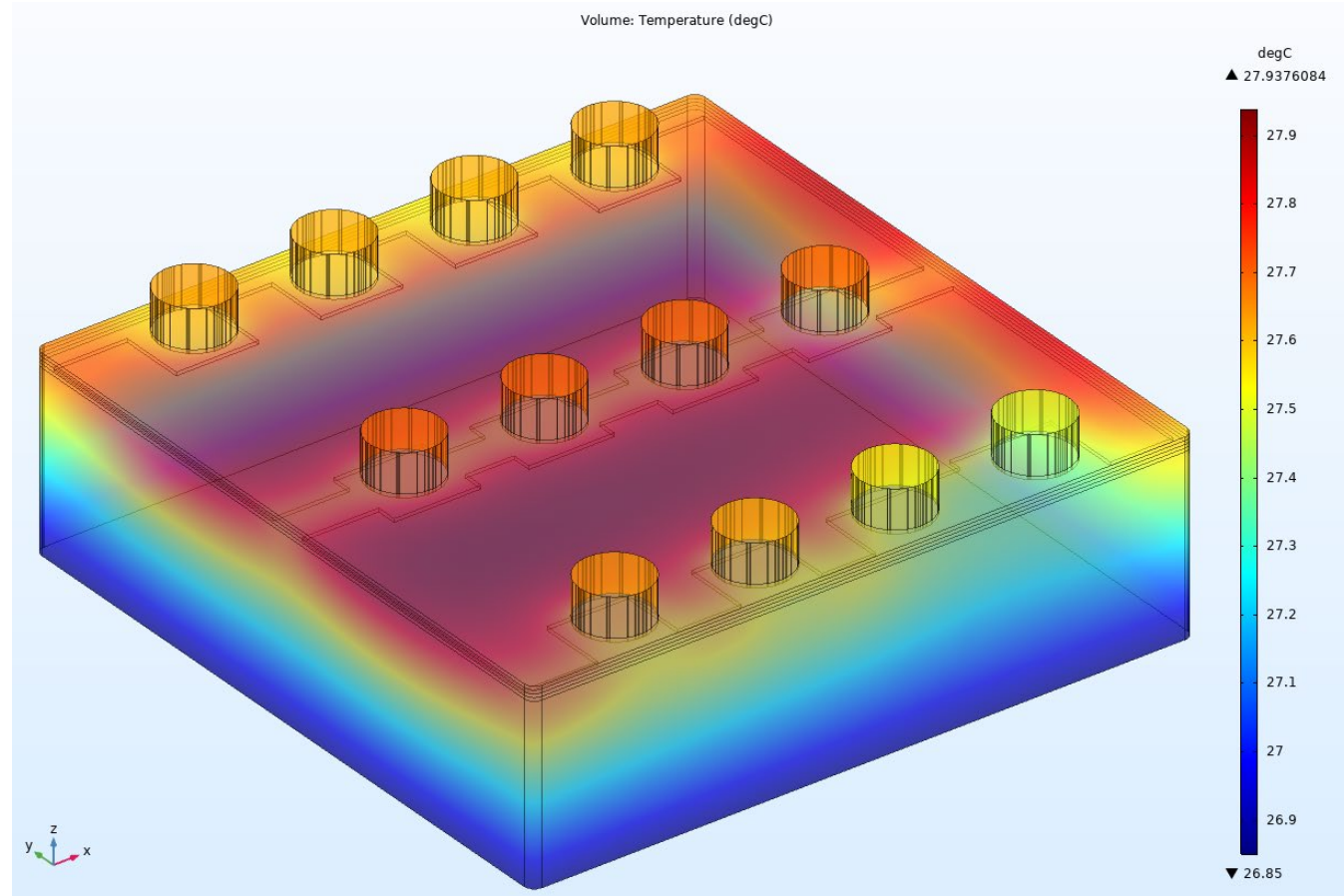
Steady-state $R_{\Theta JB}$

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



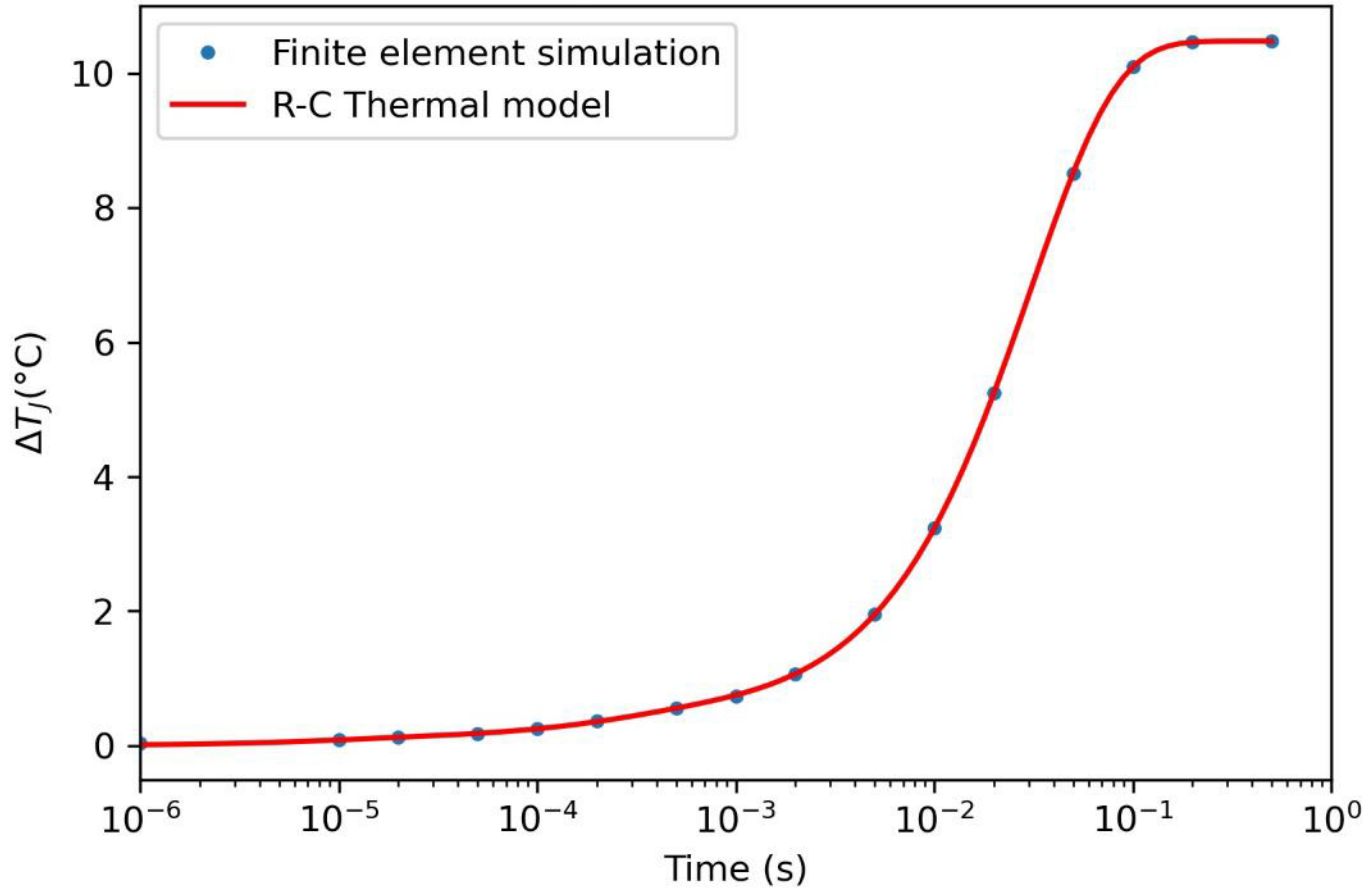
Steady-state $R_{\theta Jc}$

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

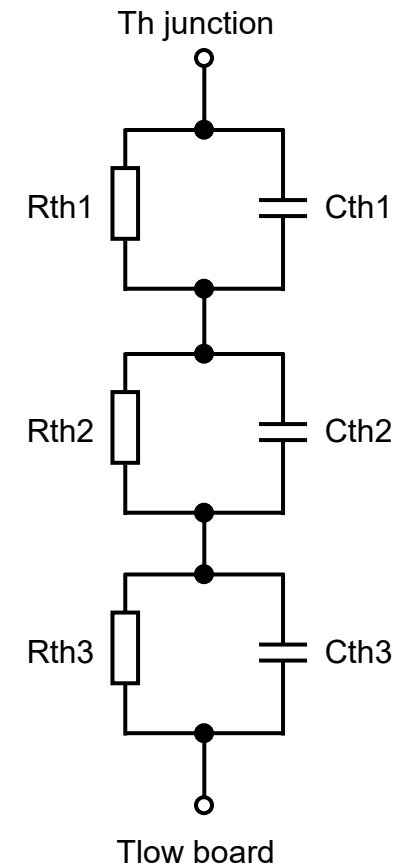


$Z_{\Theta JB}$ R-C thermal model

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

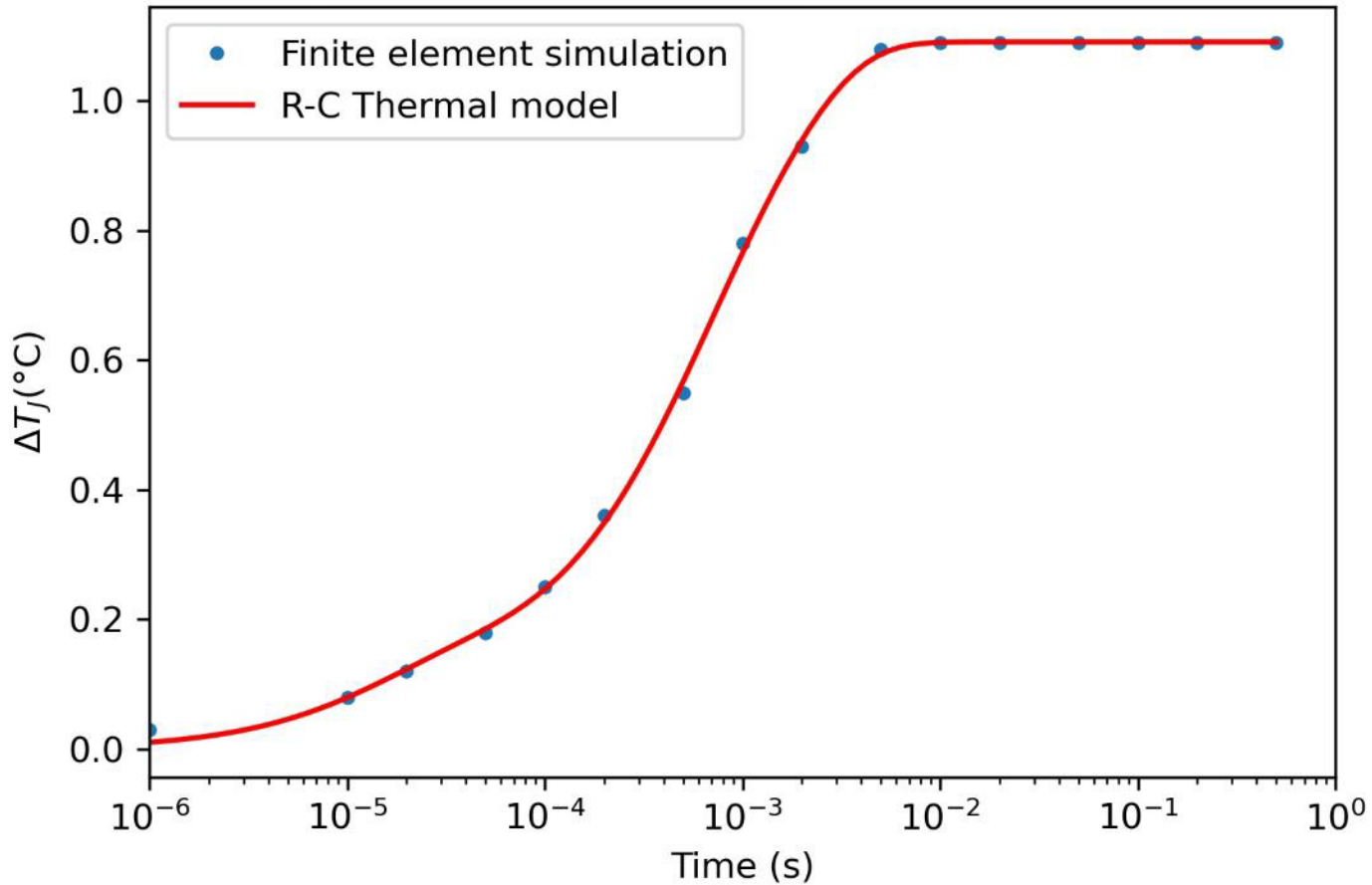


Model Parameter	Value	Unit
Rth1	1.02e-01	°C/W
Rth2	3.30e-01	
Rth3	1.00e+01	
Cth1	9.41e-05	J/°C
Cth2	7.17e-04	
Cth3	3.05e-03	

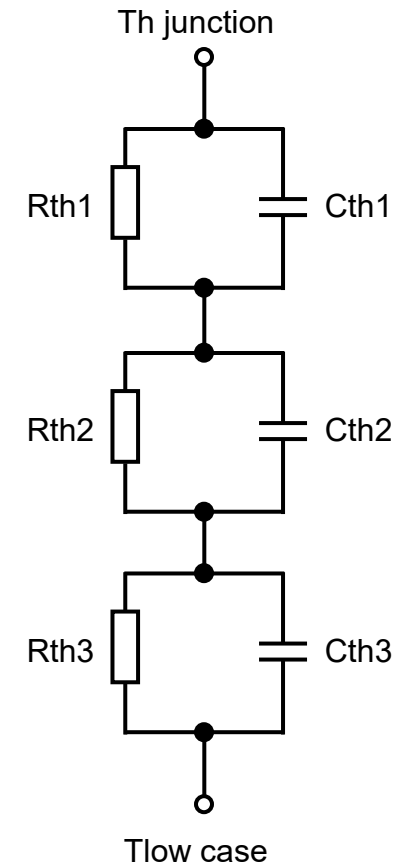


$Z_{\Theta JC}$ R-C thermal model

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



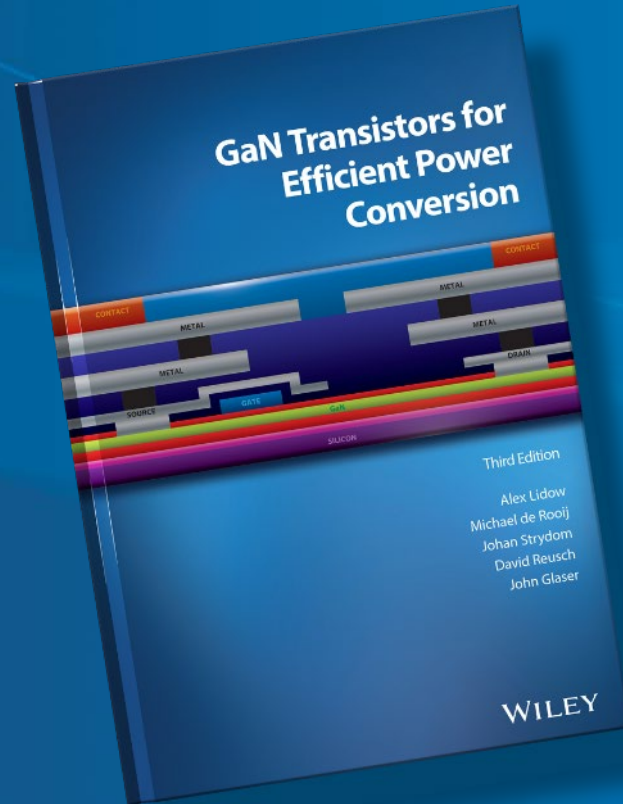
Model Parameter	Value	Unit
Rth1	1.23e-01	°C/W
Rth2	3.87e-01	
Rth3	5.81e-01	
Cth1	1.06e-04	J/°C
Cth2	1.04e-03	
Cth3	2.53e-03	



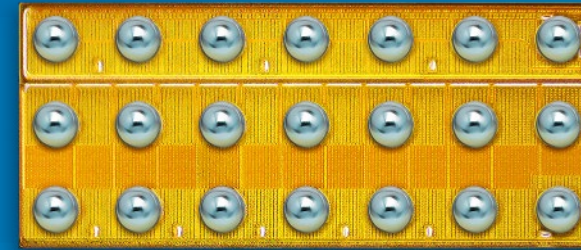


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