

Thermal Model of EPC7018



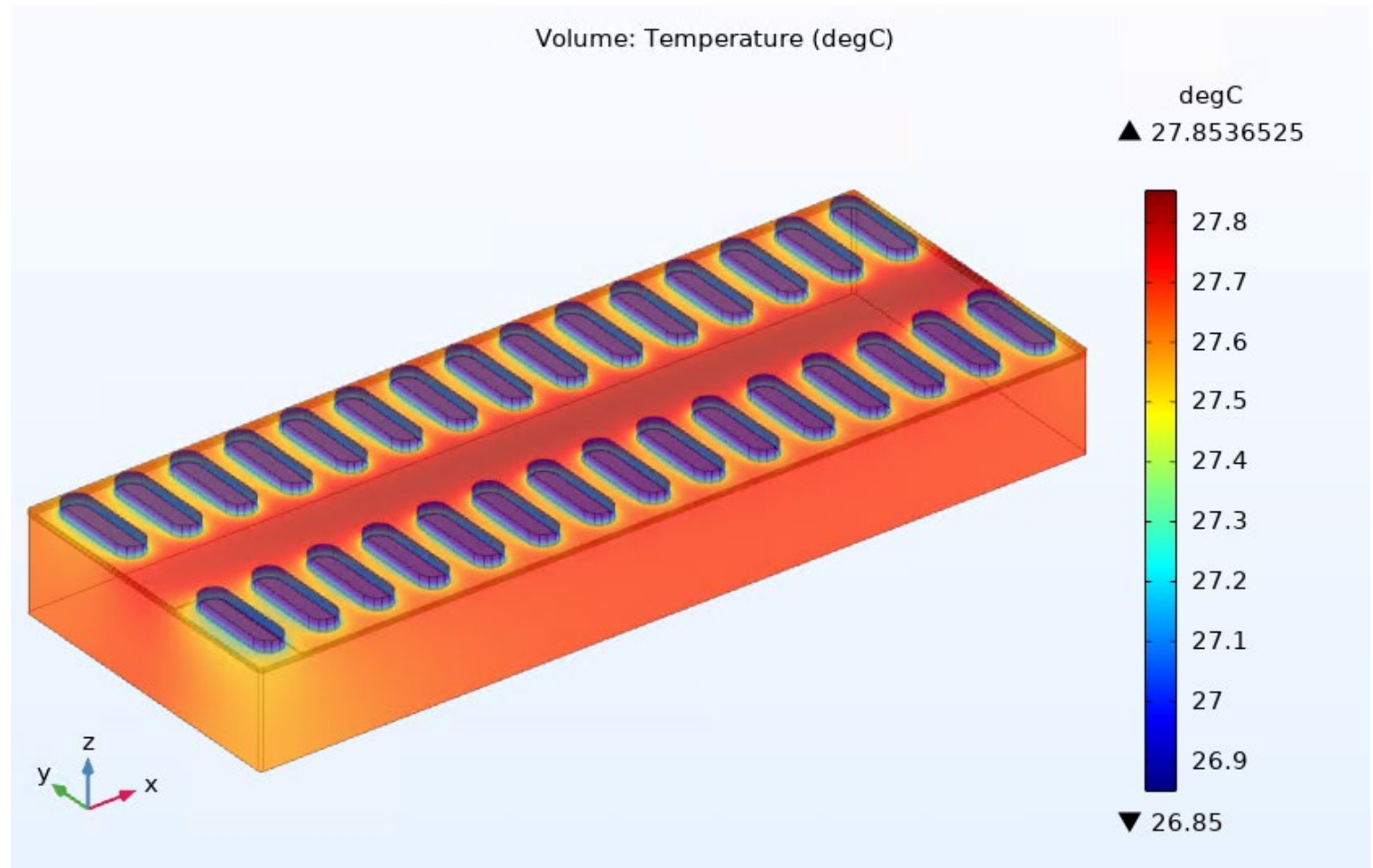
EPC7018 FEA thermal simulation



- The thermal model applies to EPC7018.
- 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.

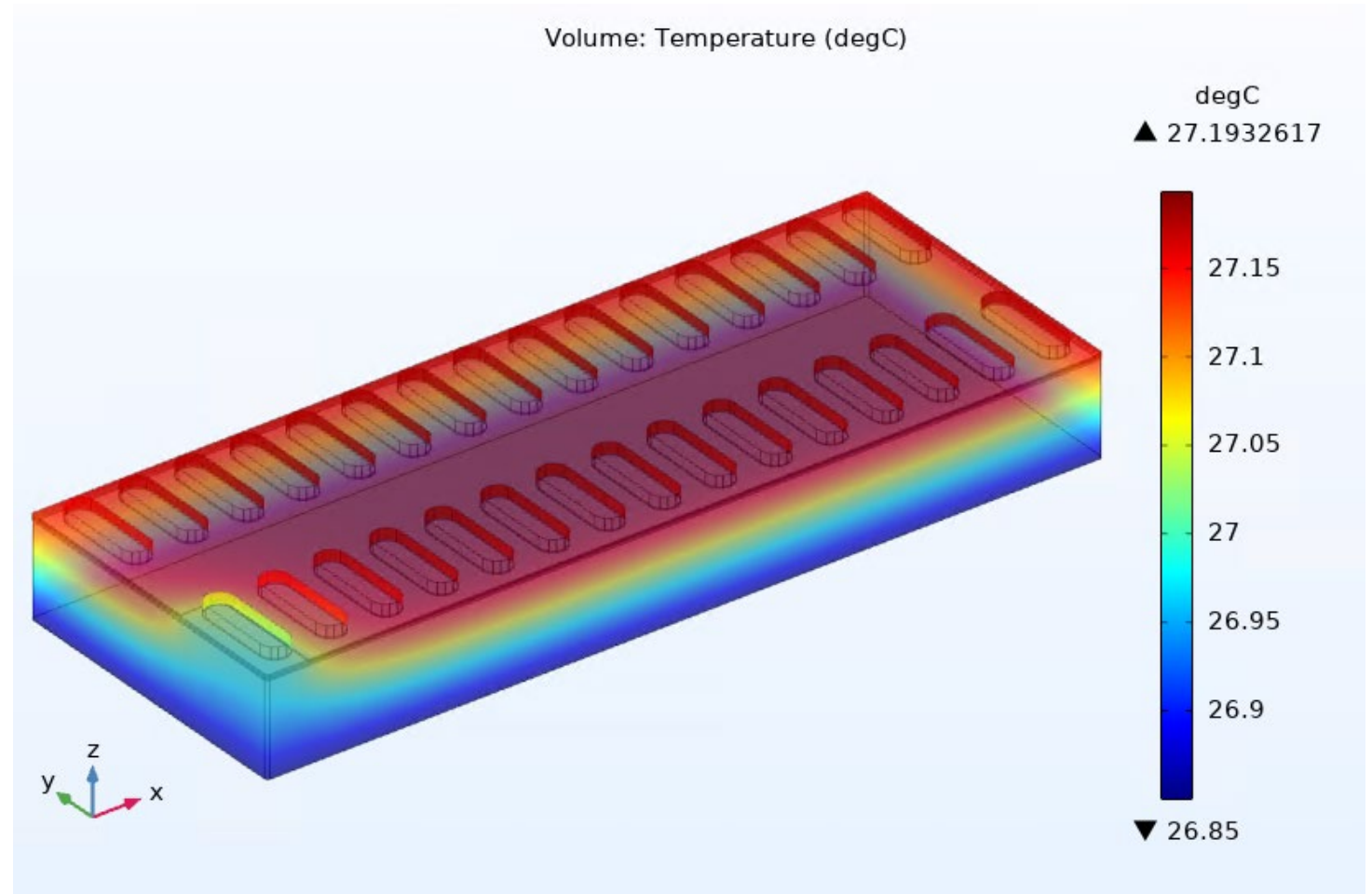
Steady-state $R_{\Theta JB}$

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



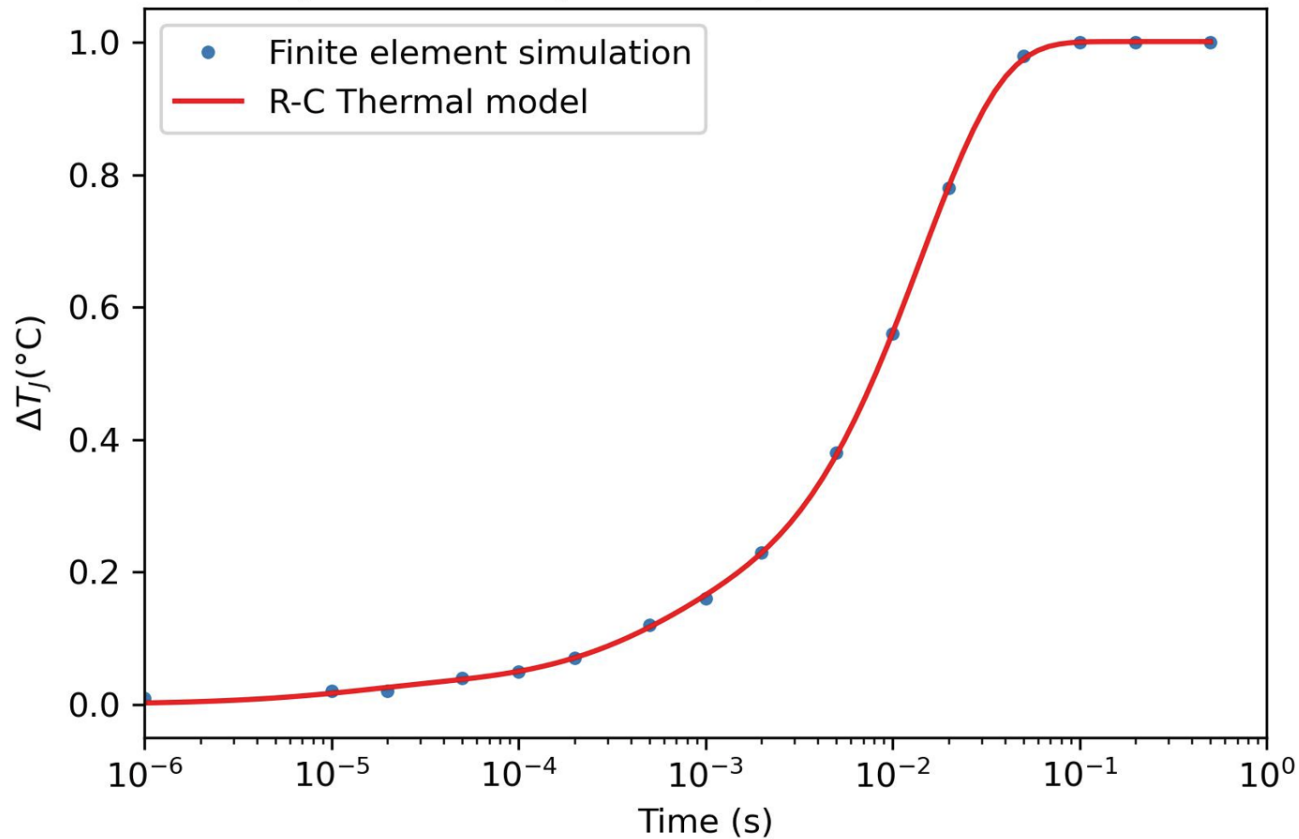
Steady-state $R_{\Theta Jc}$

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

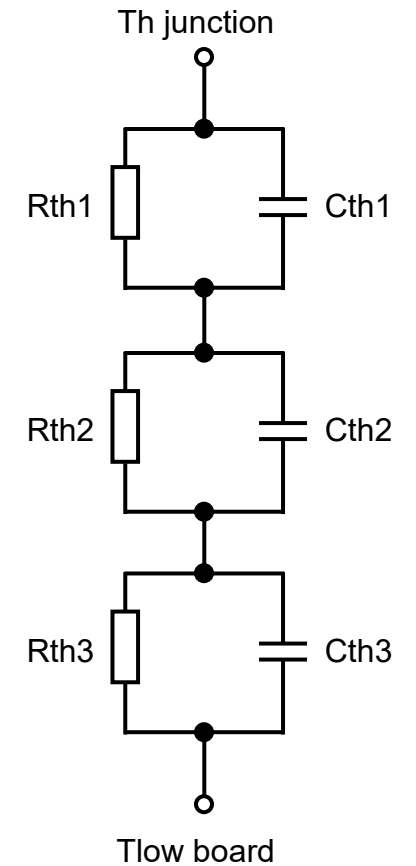


$Z_{\Theta JB}$ R-C thermal model

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

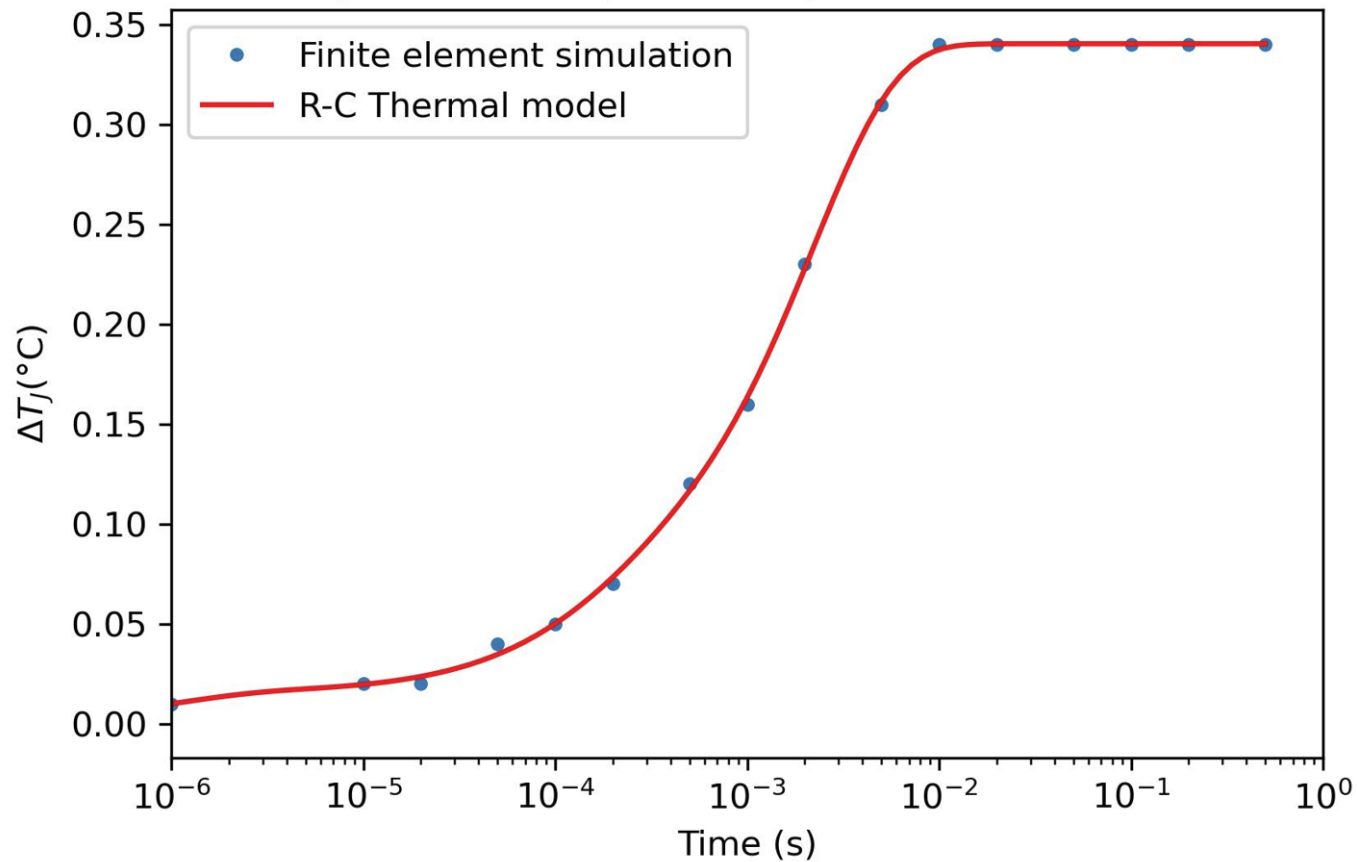


Model Parameter	Value	Unit
Rth1	2.57E-02	°C/W
Rth2	8.85E-02	
Rth3	8.87E-01	
Cth1	4.82E-04	J/°C
Cth2	4.94E-03	
Cth3	1.61E-02	

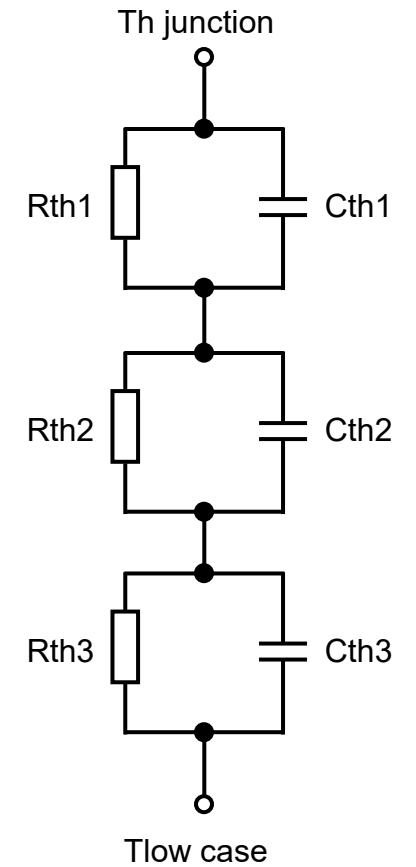


$Z_{\Theta JC}$ R-C thermal model

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



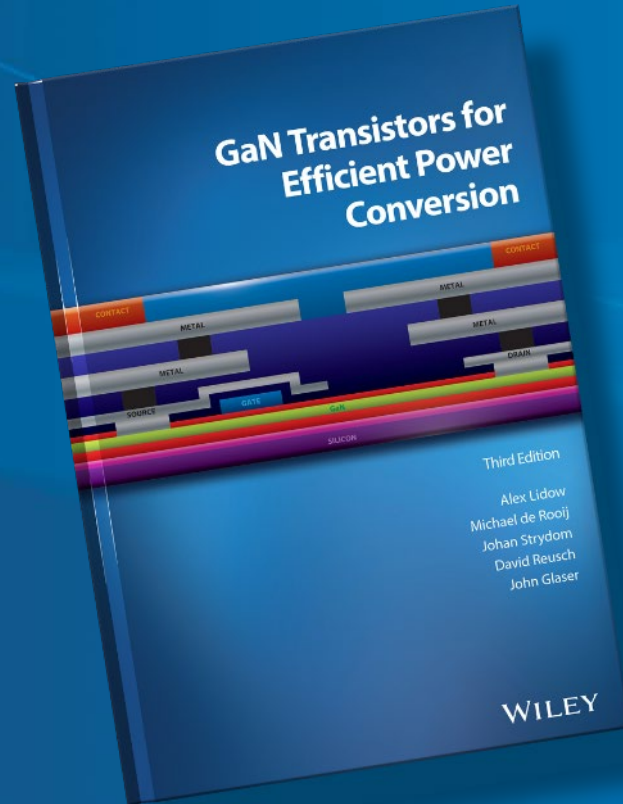
Model Parameter	Value	Unit
Rth1	1.55E-02	°C/W
Rth2	4.60E-02	
Rth3	2.79E-01	
Cth1	6.71E-05	J/°C
Cth2	3.29E-03	
Cth3	7.90E-03	



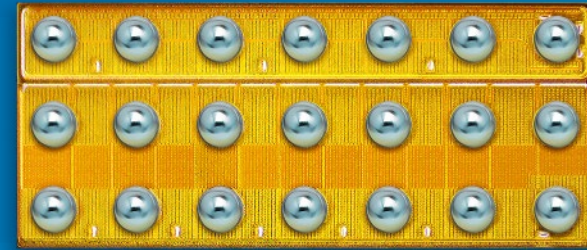


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