

Thermal Model of EPC2057



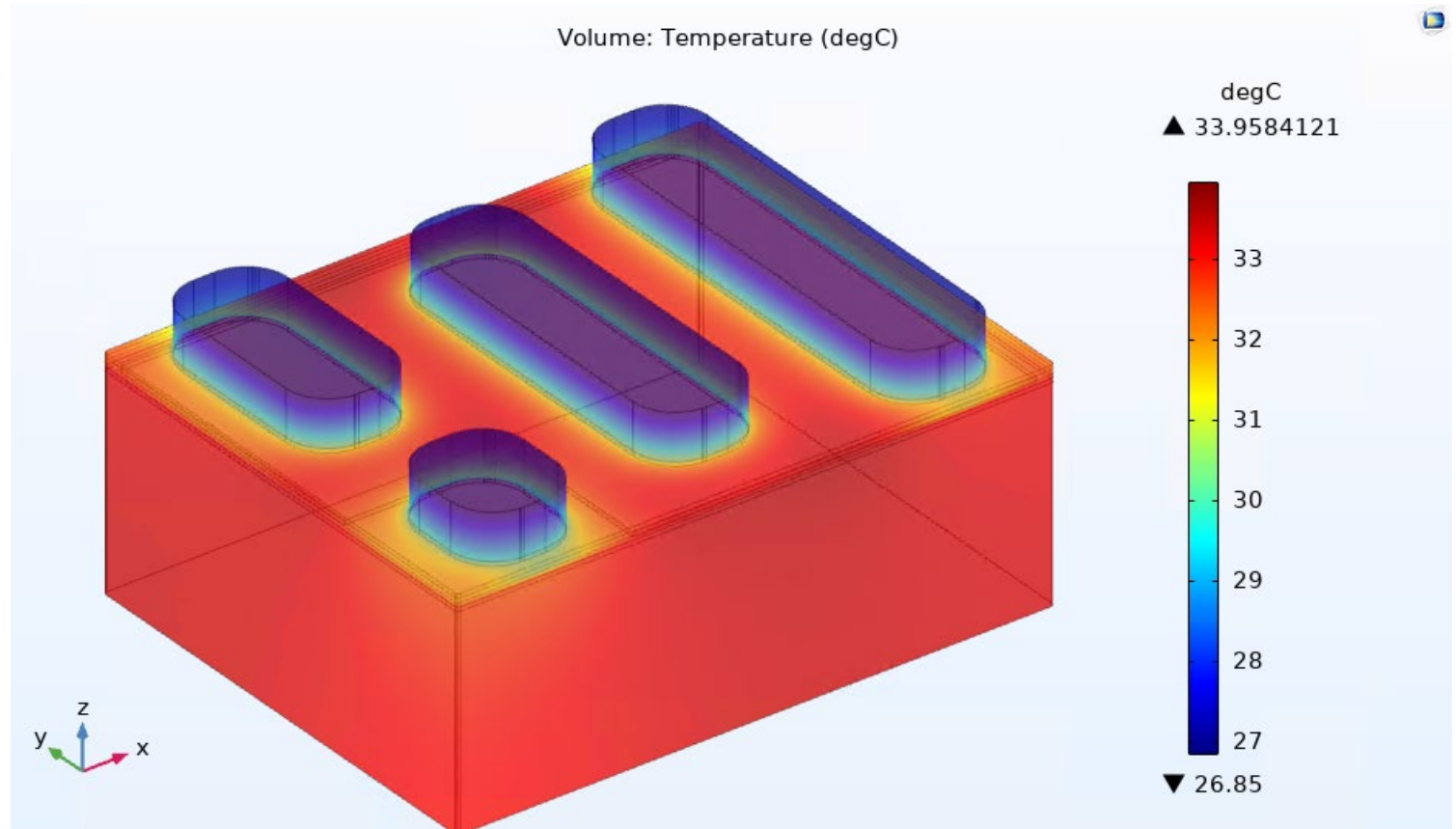
EPC2057 FEA thermal simulation



- The thermal model applies to EPC2057.
- 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.

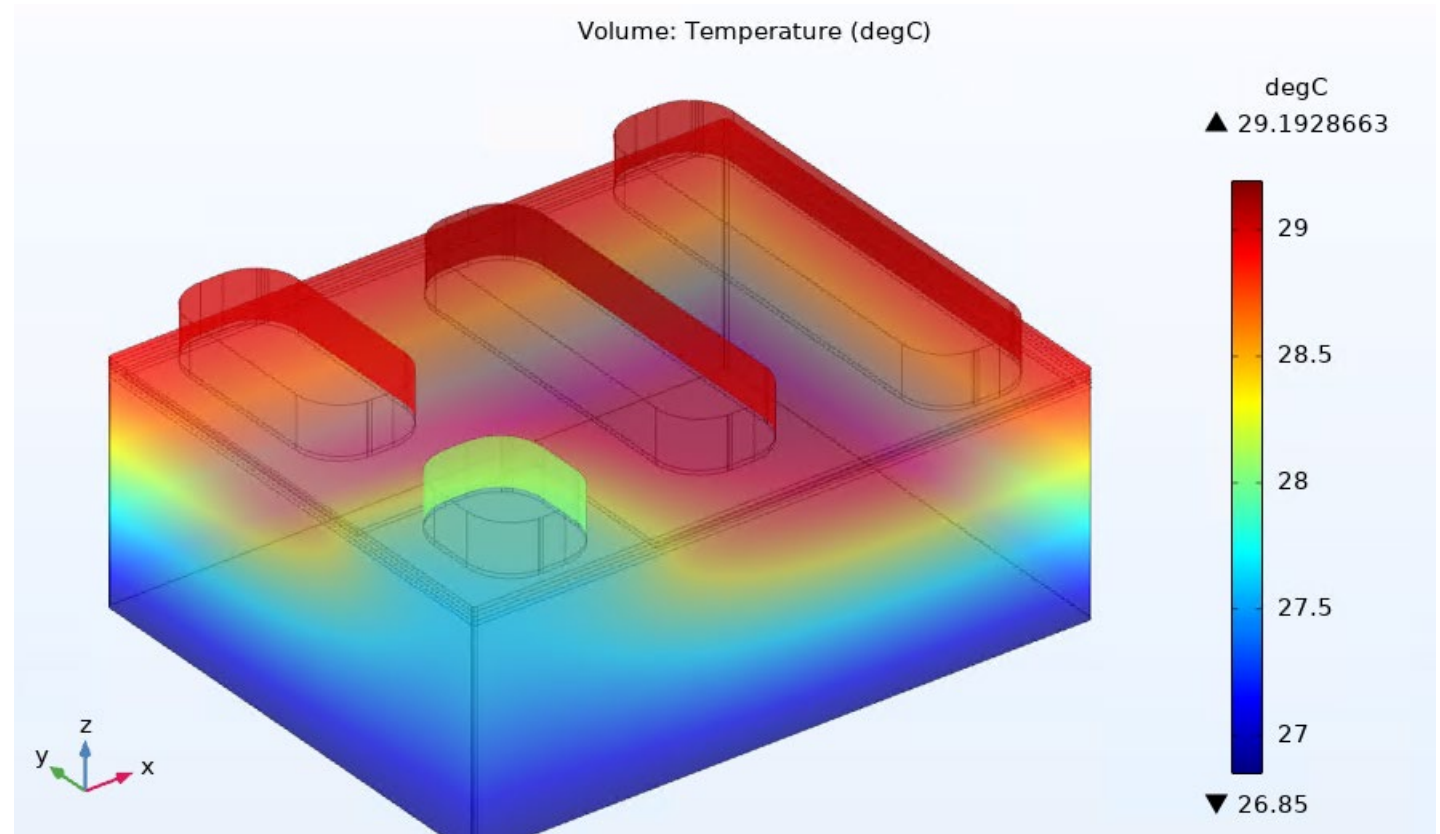
Steady-state $R_{\Theta JB}$

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



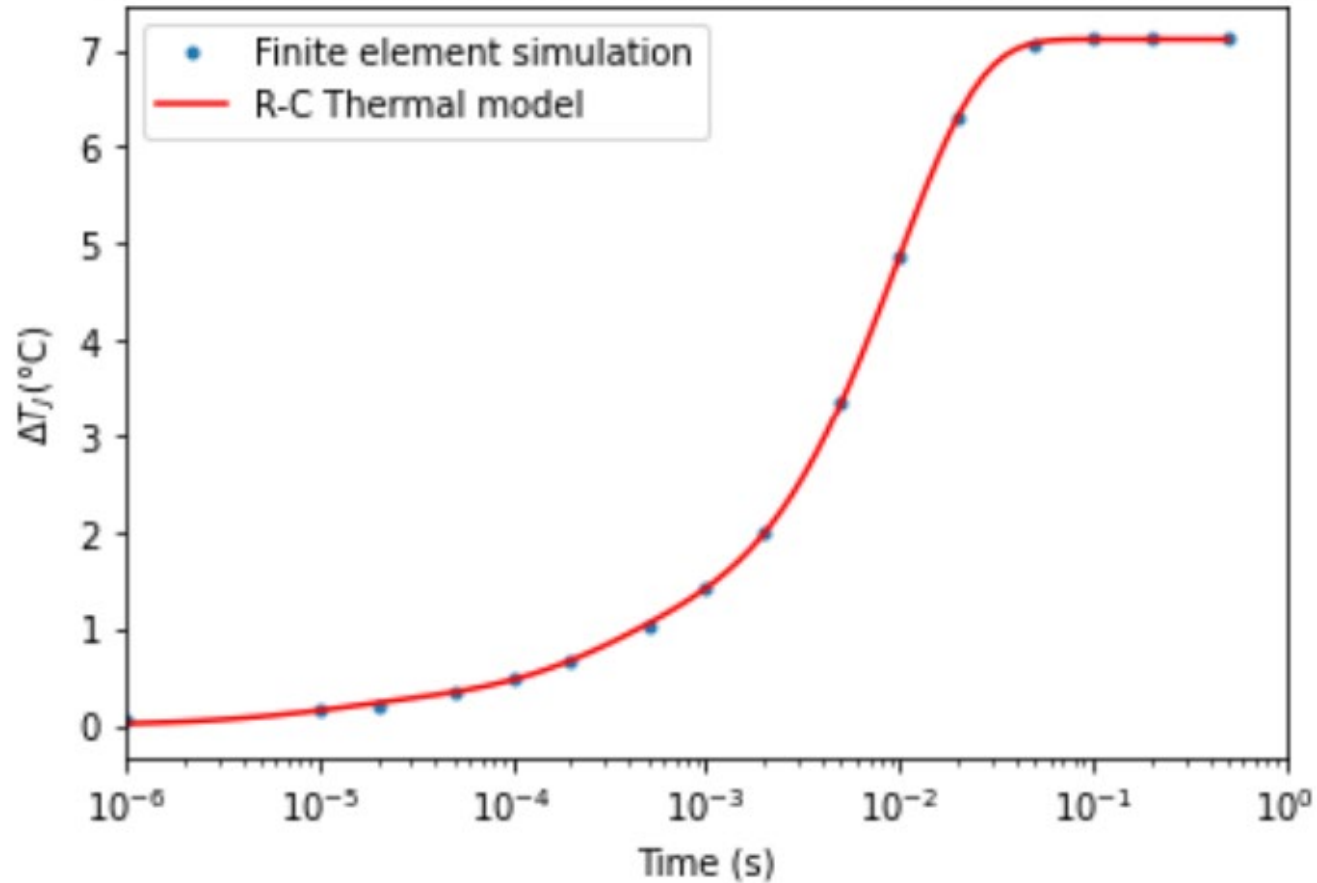
Steady-state $R_{\theta Jc}$

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

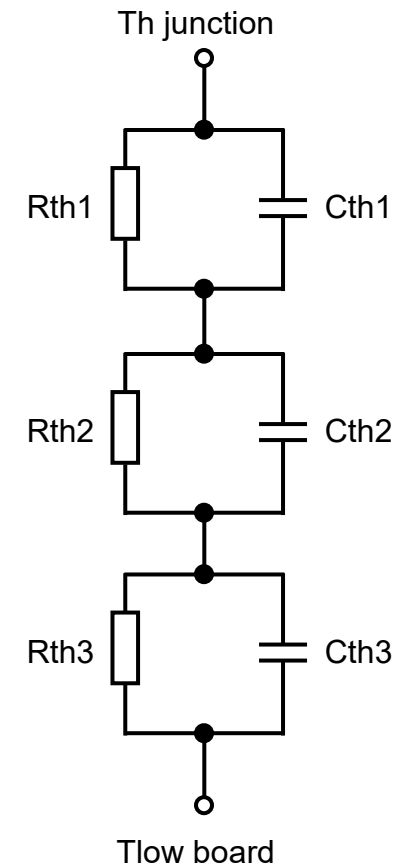


$Z_{\Theta JB}$ R-C thermal model

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

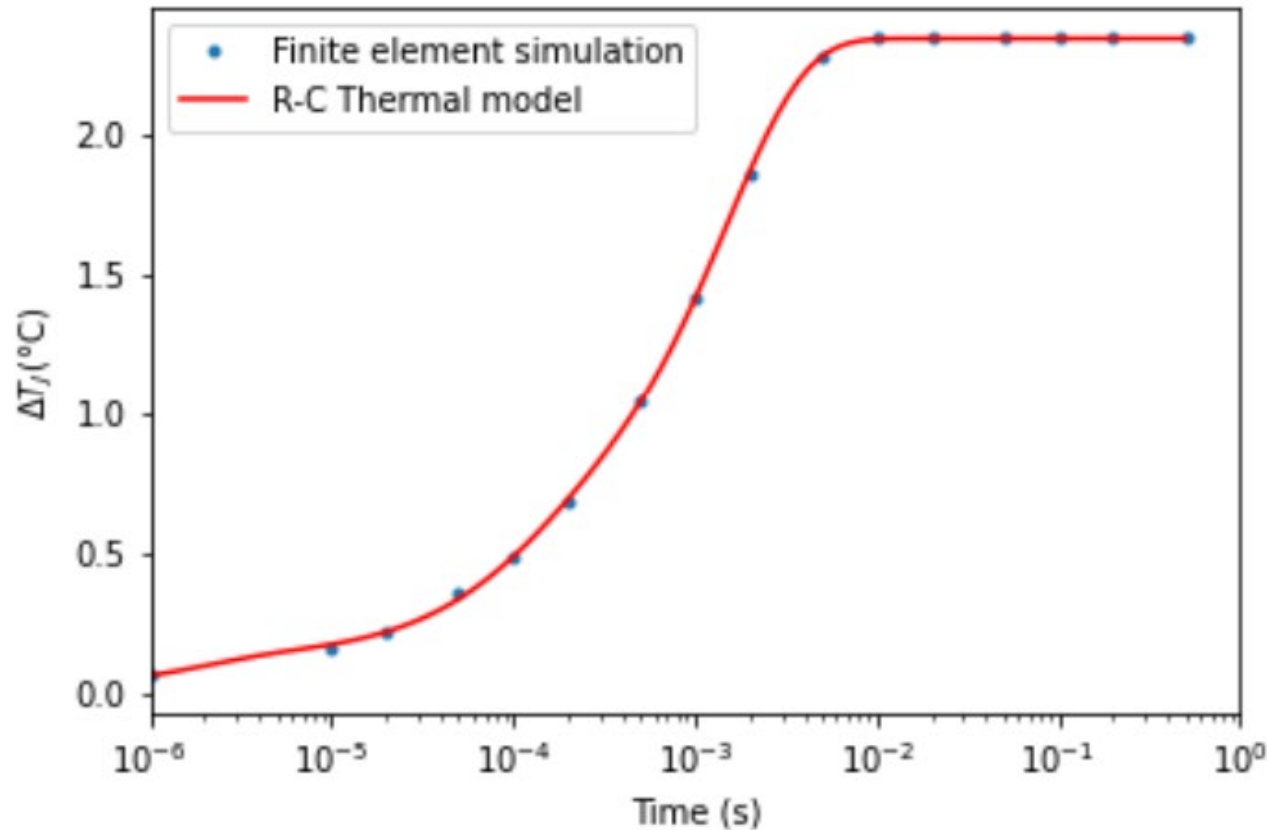


Model Parameter	Value	Unit
Rth1	2.04E-01	°C/W
Rth2	6.10E-01	
Rth3	6.29E+00	
Cth1	5.06E-05	J/°C
Cth2	4.00E-04	
Cth3	1.55E-03	

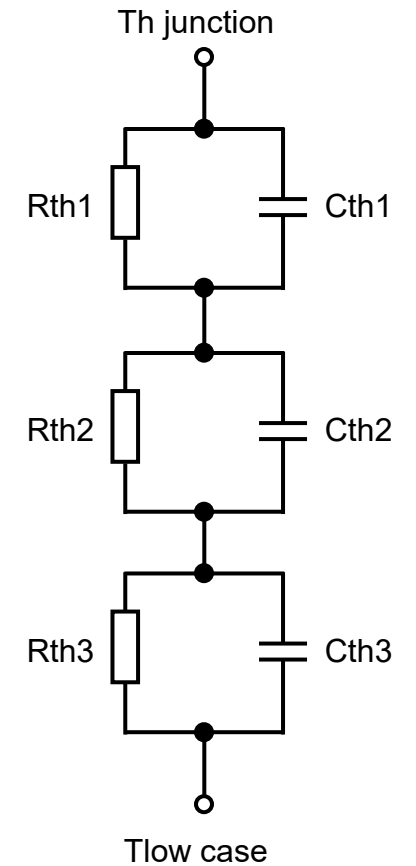


$Z_{\Theta JC}$ R-C thermal model

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



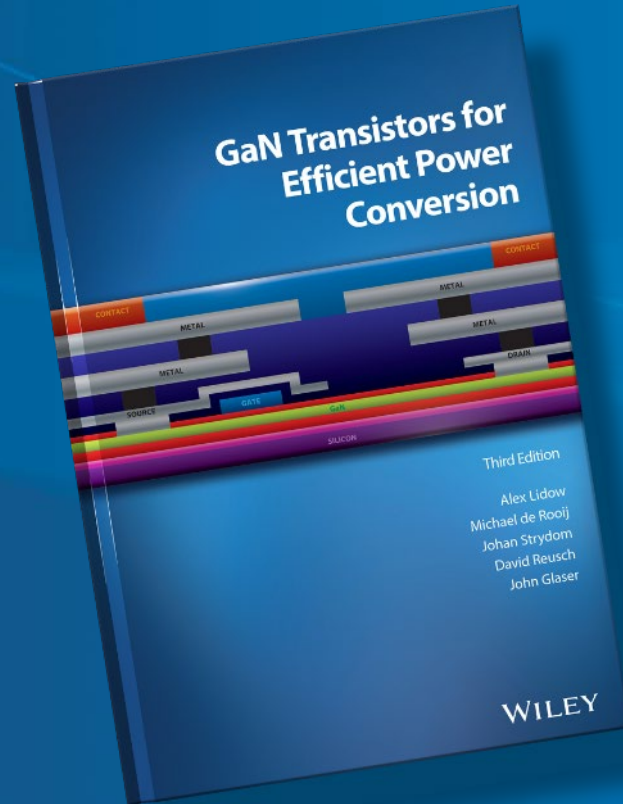
Model Parameter	Value	Unit
Rth1	1.24E-01	°C/W
Rth2	3.99E-01	
Rth3	1.82E+00	
Cth1	1.40E-05	J/°C
Cth2	2.68E-04	
Cth3	8.20E-04	



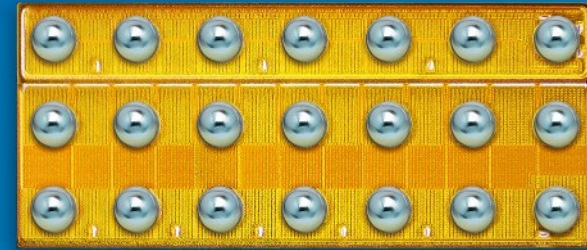


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