

# Thermal Model of EPC2221



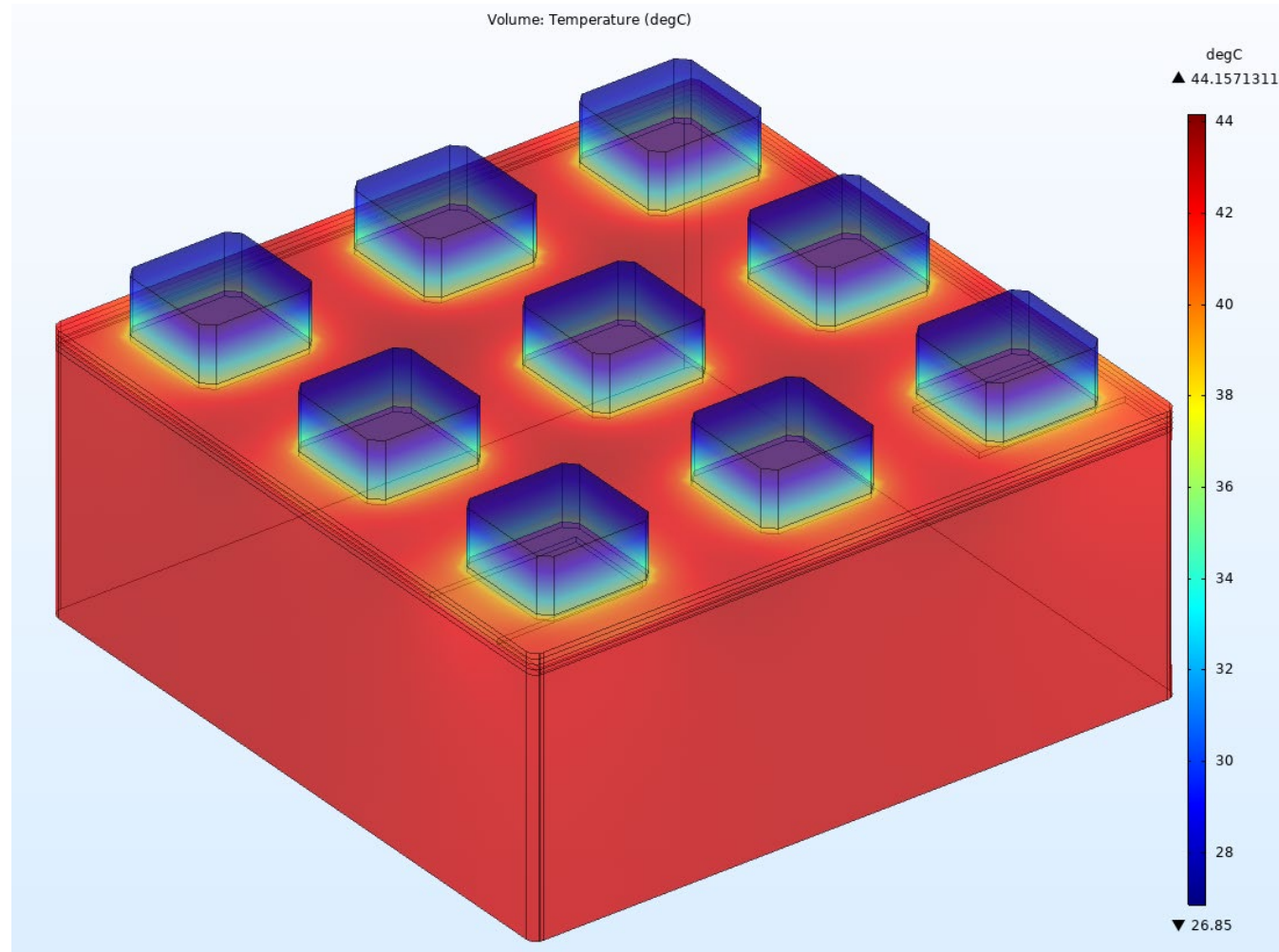
# EPC2221 FEA thermal simulation



- The thermal model applies to EPC2036.
- 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 $R_{\Theta JB}$

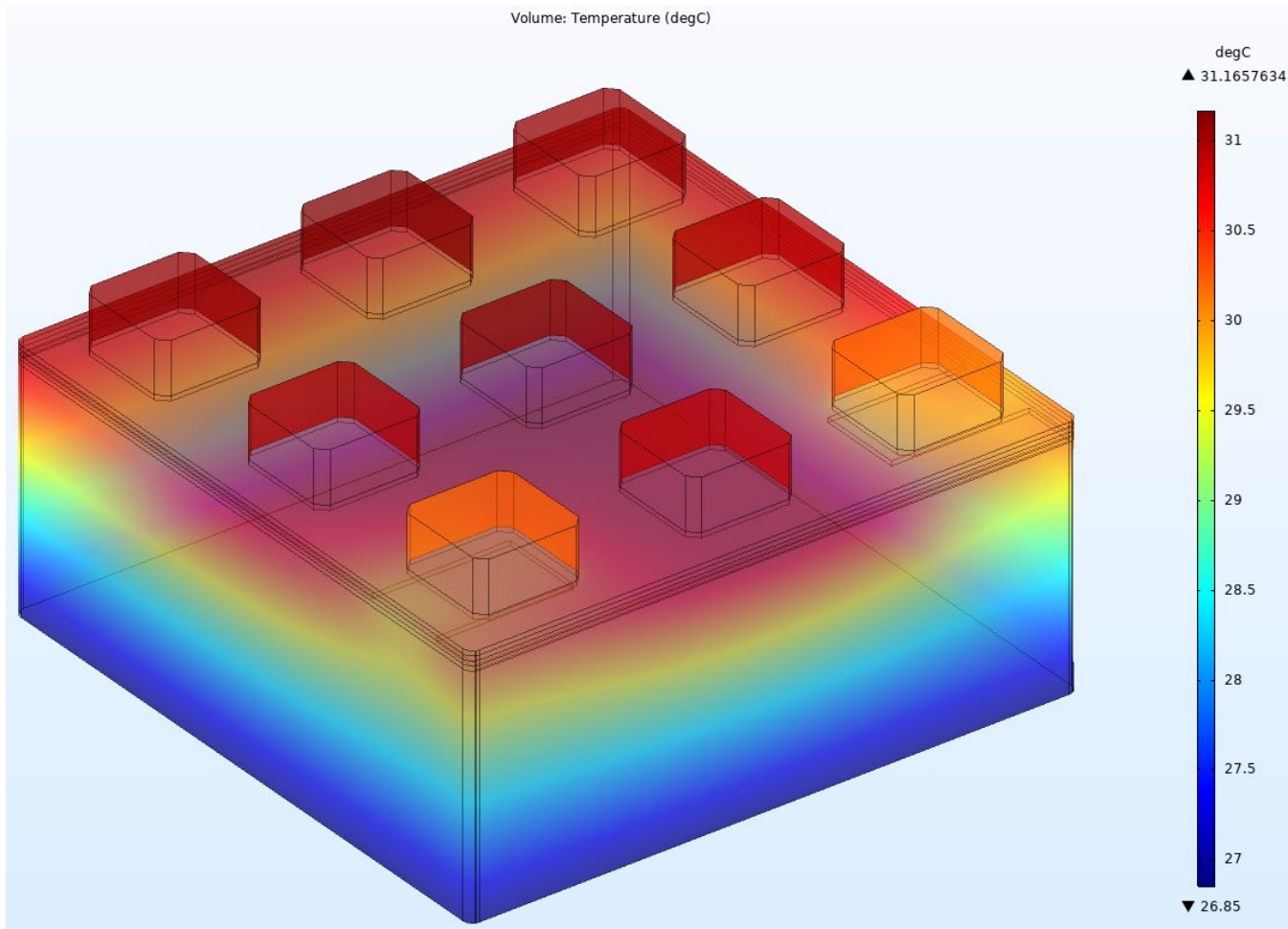
- Example:  $P = 1\text{ W}$  dissipated by each FET





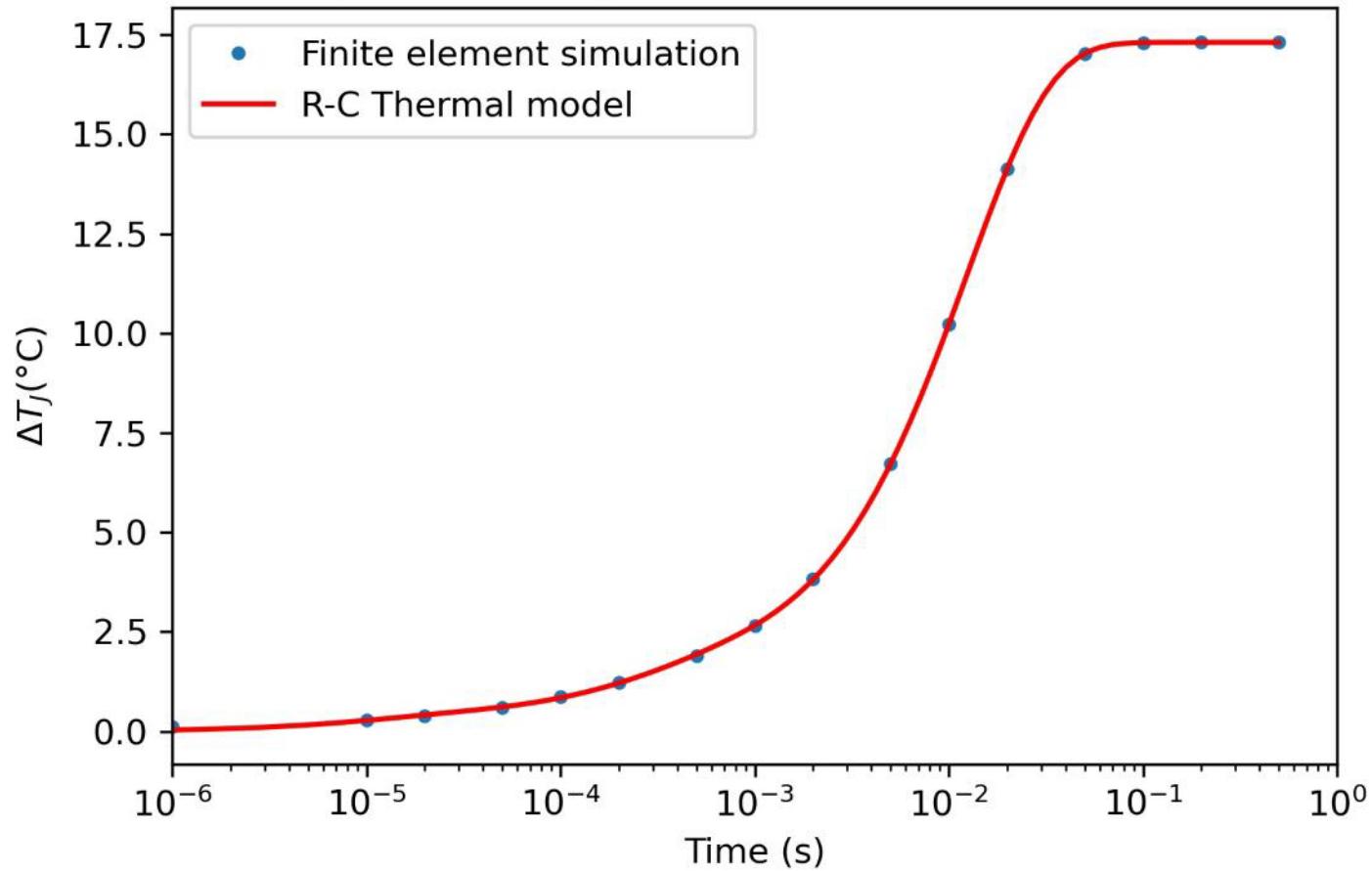
# Steady-state $R_{\theta JC}$

- Example:  $P = 1\text{ W}$  dissipated by each FET

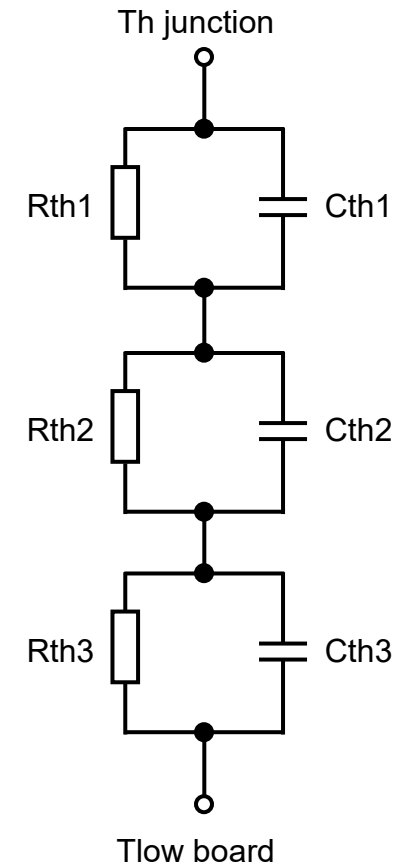


# $Z_{\Theta JB}$ R-C thermal model

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

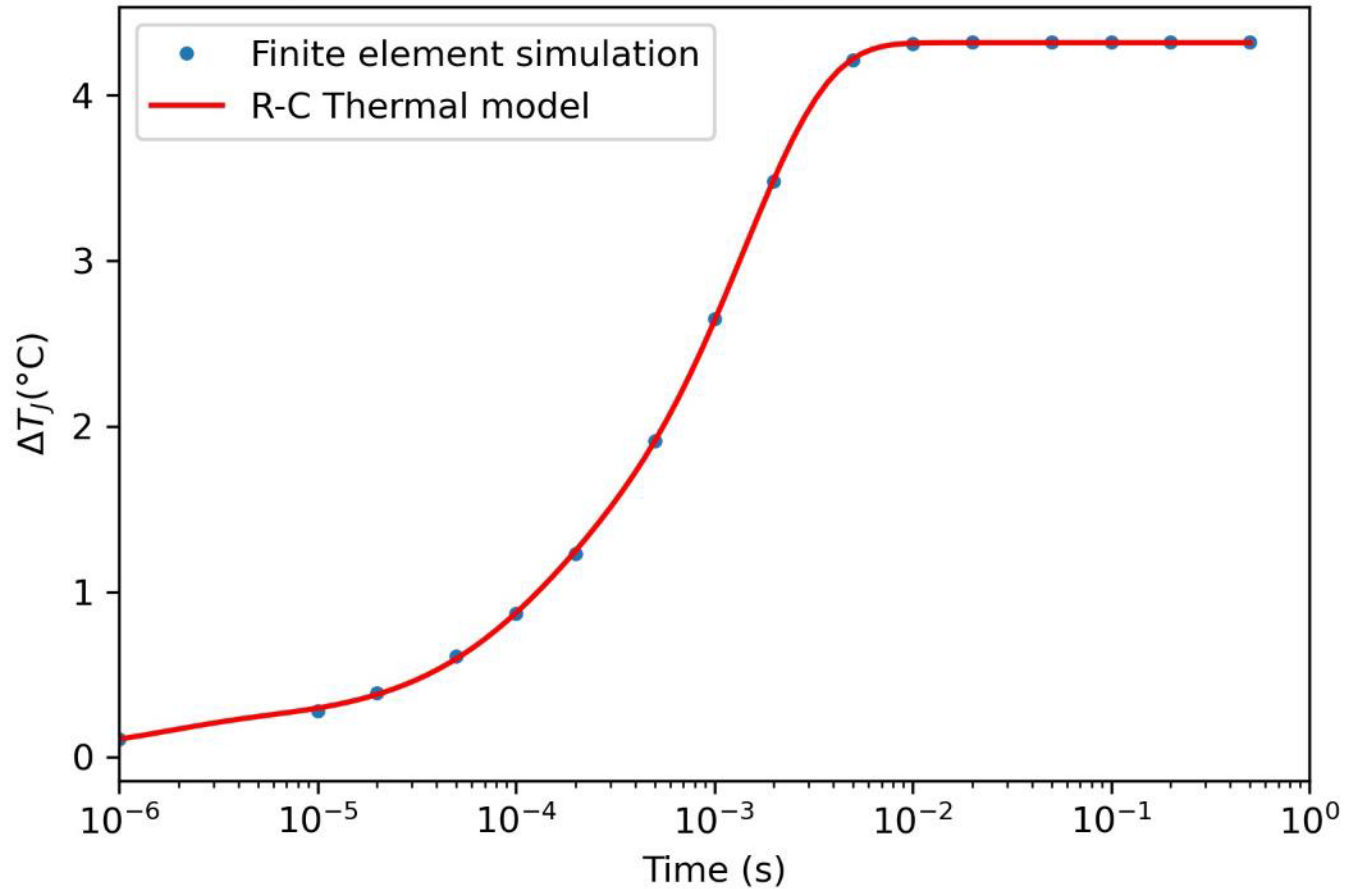


Model Parameter	Value	Unit
Rth1	3.53e-01	°C/W
Rth2	1.11e+00	
Rth3	1.58e+01	
Cth1	2.87e-05	J/°C
Cth2	2.24e-04	
Cth3	7.84e-04	

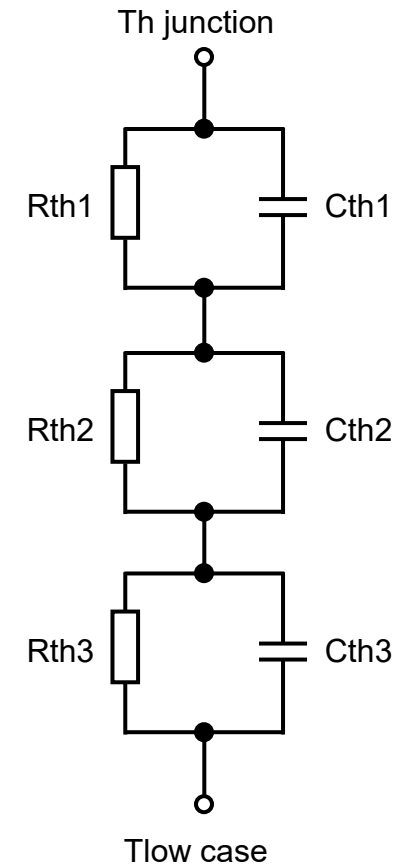


# $Z_{\Theta JC}$ R-C thermal model

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



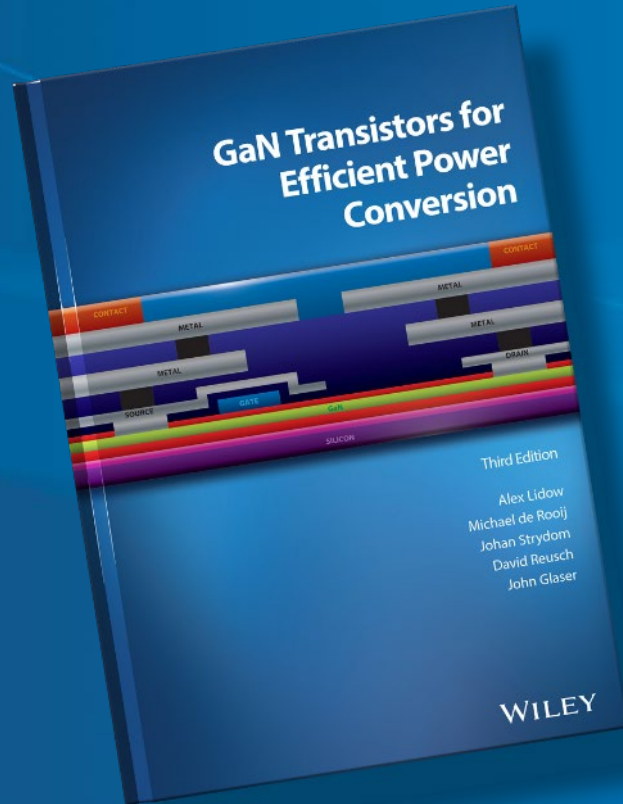
Model Parameter	Value	Unit
Rth1	2.09e-01	°C/W
Rth2	6.72e-01	
Rth3	3.44e+00	
Cth1	7.31e-06	J/°C
Cth2	1.48e-04	
Cth3	4.08e-04	



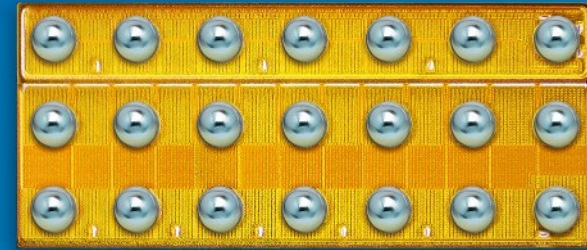


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