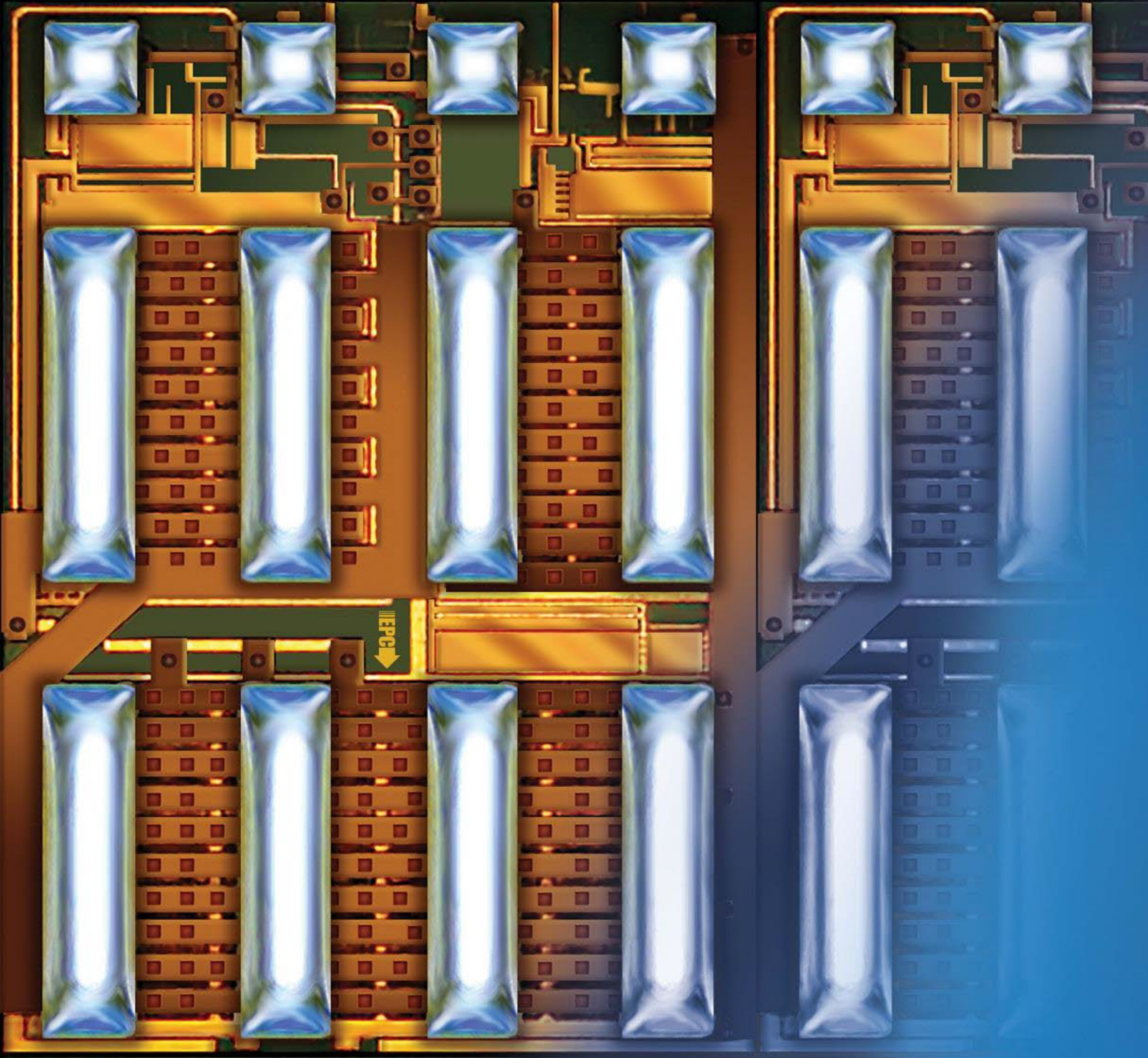


Thermal Model of EPC2090

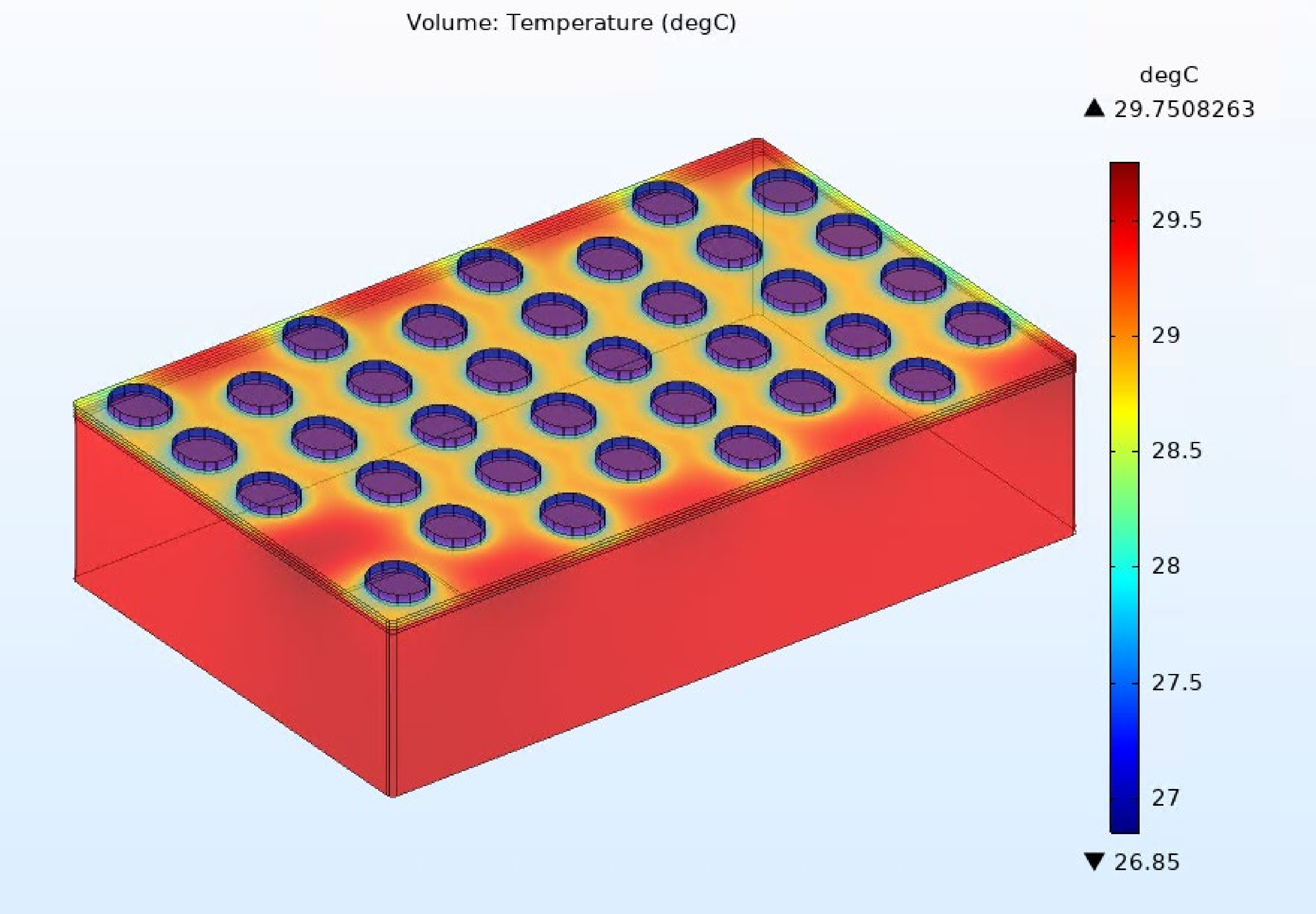
EFFICIENT POWER CONVERSION

EPC2090 FEA thermal simulation

- The thermal model applies to EPC2090.
- 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.

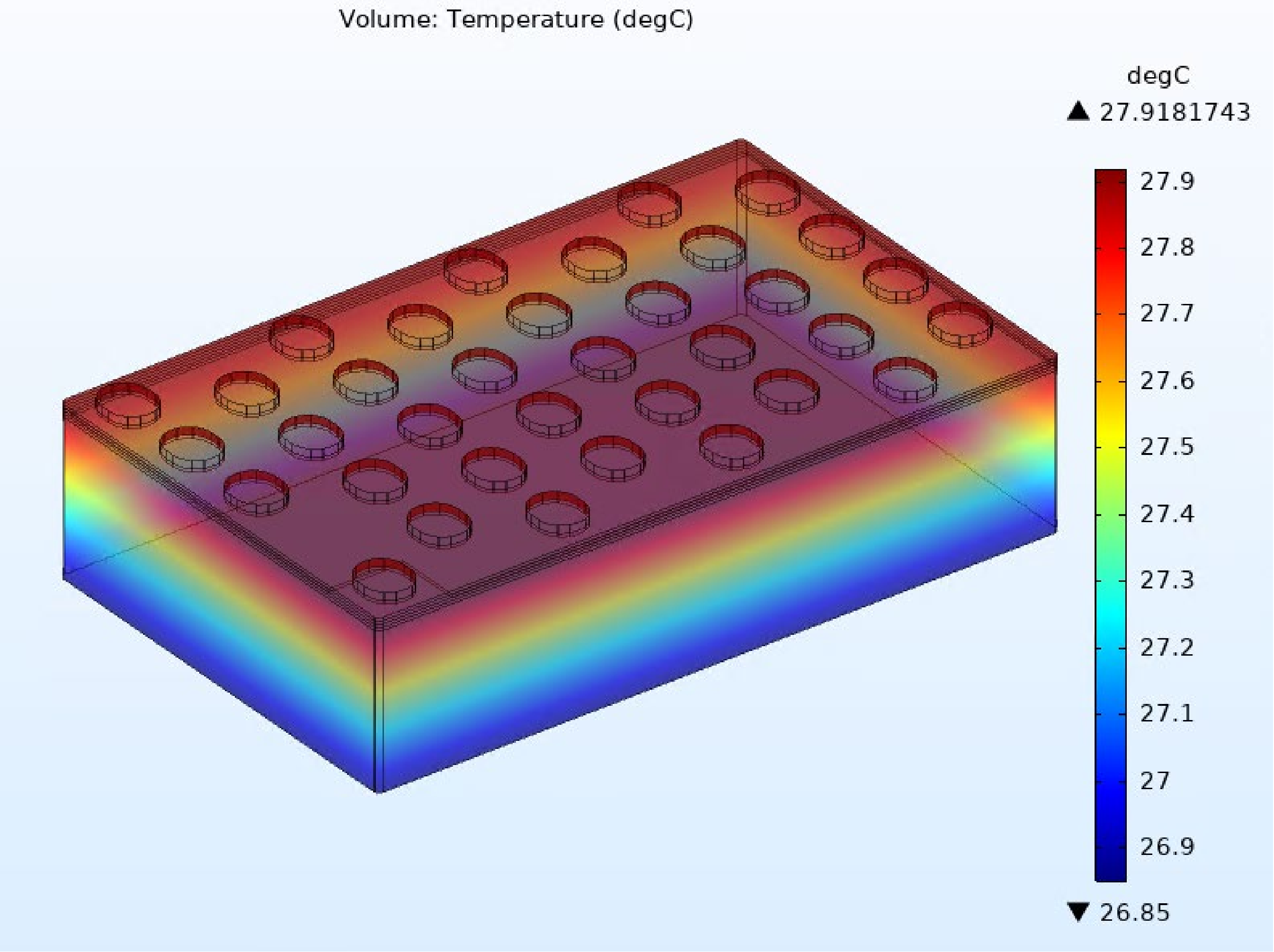
Steady-state $R_{\Theta JB}$

- Example: P = 1 W



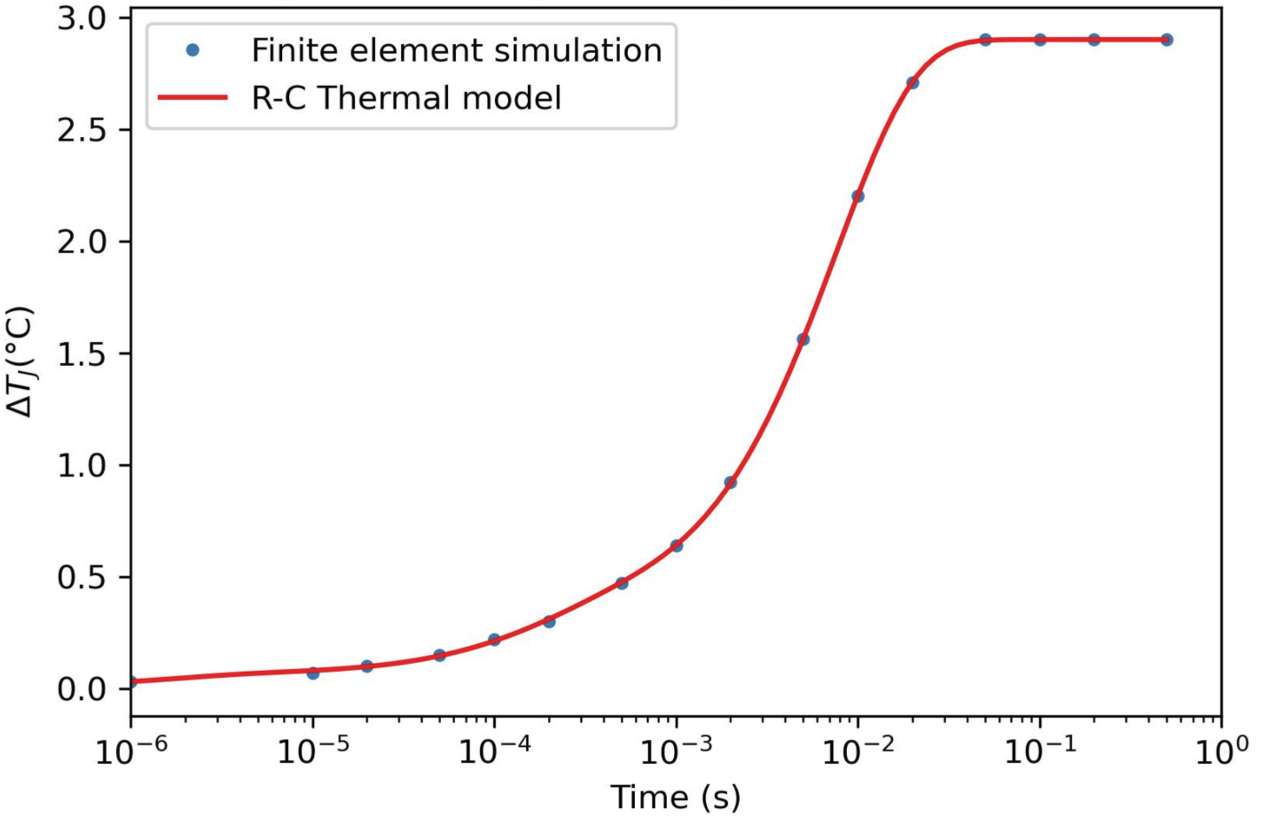
Steady-state $R_{\Theta JC}$

- Example: P = 1 W

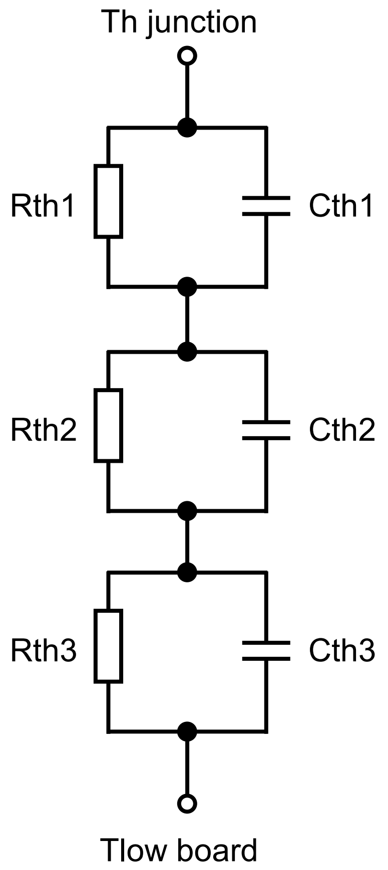


$Z_{\Theta JB}$ R-C thermal model

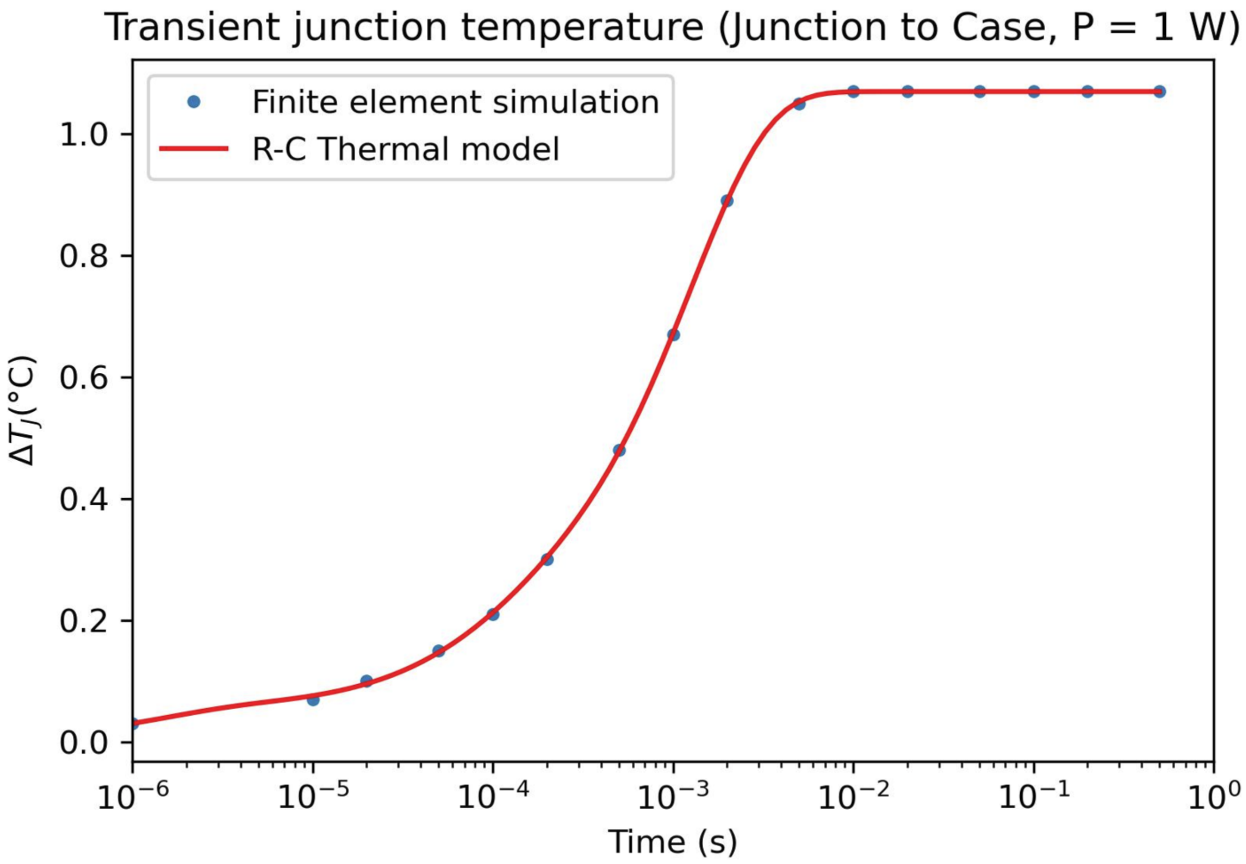
Transient junction temperature (Junction to Board, P = 1 W)



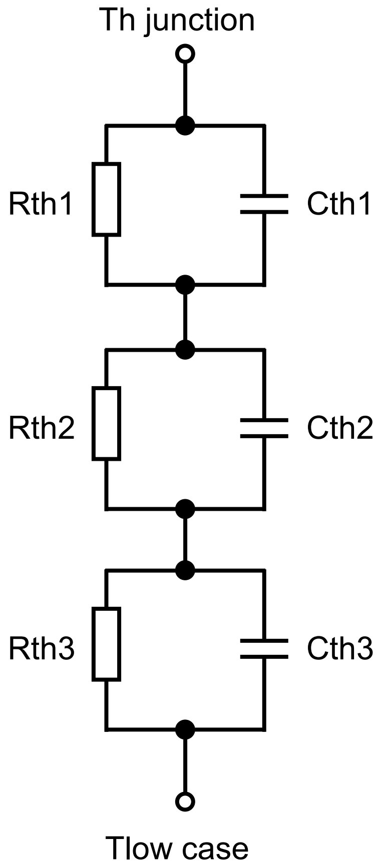
Model Parameter	Value	Unit
Rth1	6.10E-02	°C/W
Rth2	2.63E-01	
Rth3	2.58E+00	
Cth1	2.70E-05	J/°C
Cth2	6.47E-04	
Cth3	2.97E-03	



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

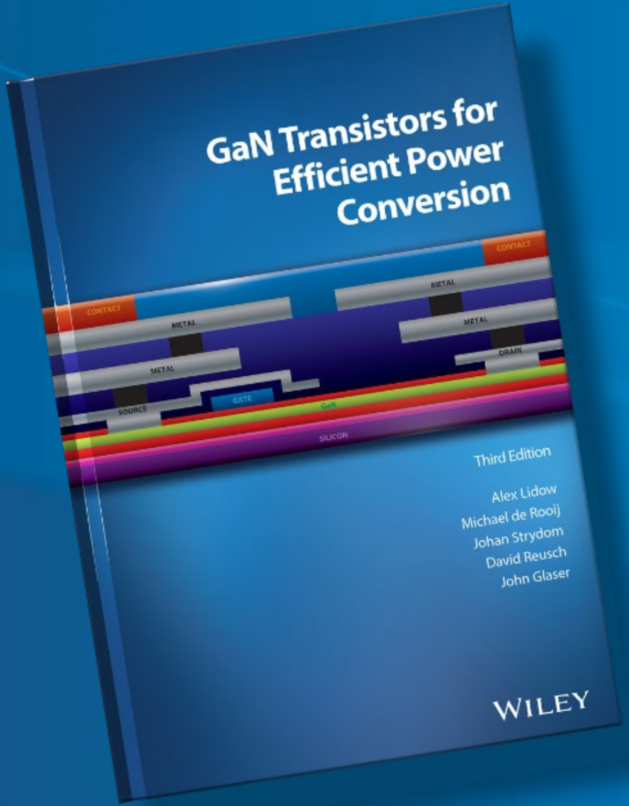


Model Parameter	Value	Unit
Rth1	5.42E-02	°C/W
Rth2	1.33E-01	
Rth3	8.83E-01	
Cth1	2.58E-05	J/°C
Cth2	6.59E-04	
Cth3	1.42E-03	



EFFICIENT POWER CONVERSION

How To GaN Video Series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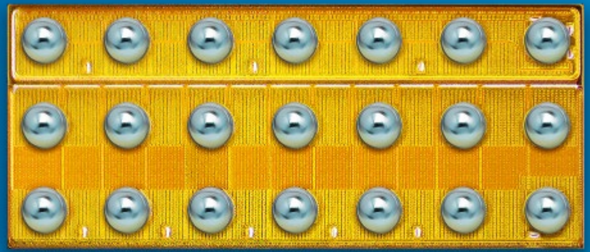

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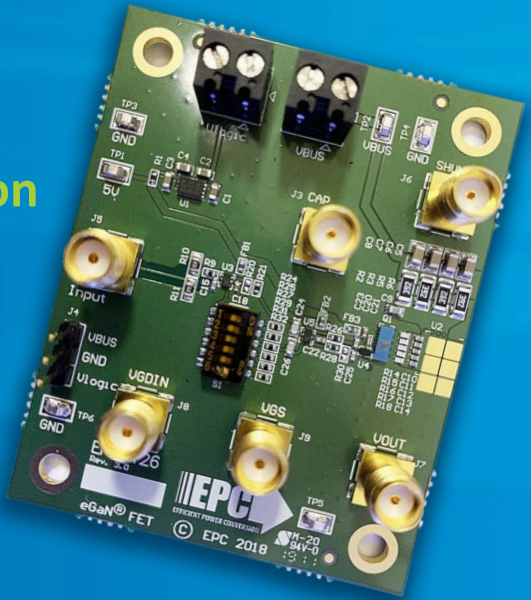
Evaluation Kits



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