

Thermal Model of EPC2218A



EFFICIENT POWER CONVERSION

EPC2218A FEA thermal simulation

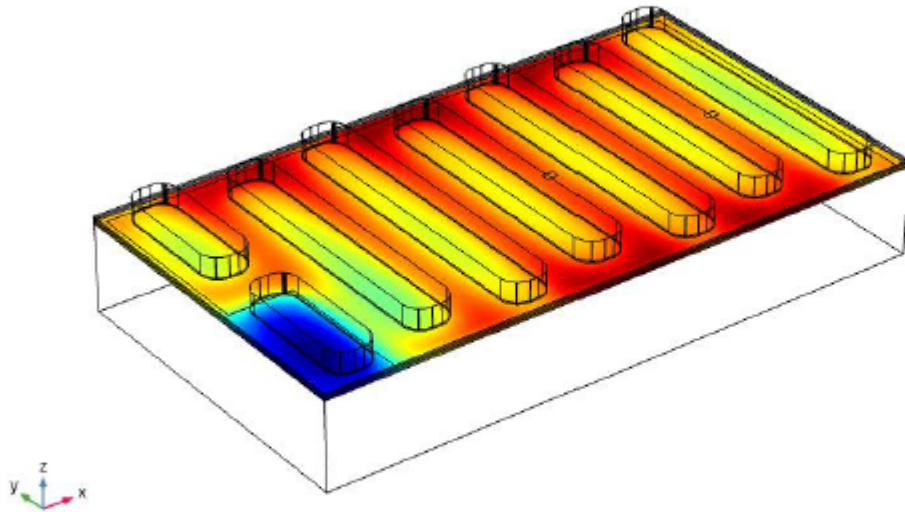


- The thermal model applies to EPC2218A.
- A power dissipation of 1 W in the device active area is assumed.
- Finite element analysis (FEA) thermal simulations
 - $R_{\Theta JB}$ and $R_{\Theta JC}$ are obtained by stationary simulations.
 - $Z_{\Theta JB}$ and $Z_{\Theta JC}$ are obtained by transient simulations.
- R-C thermal model is generated.

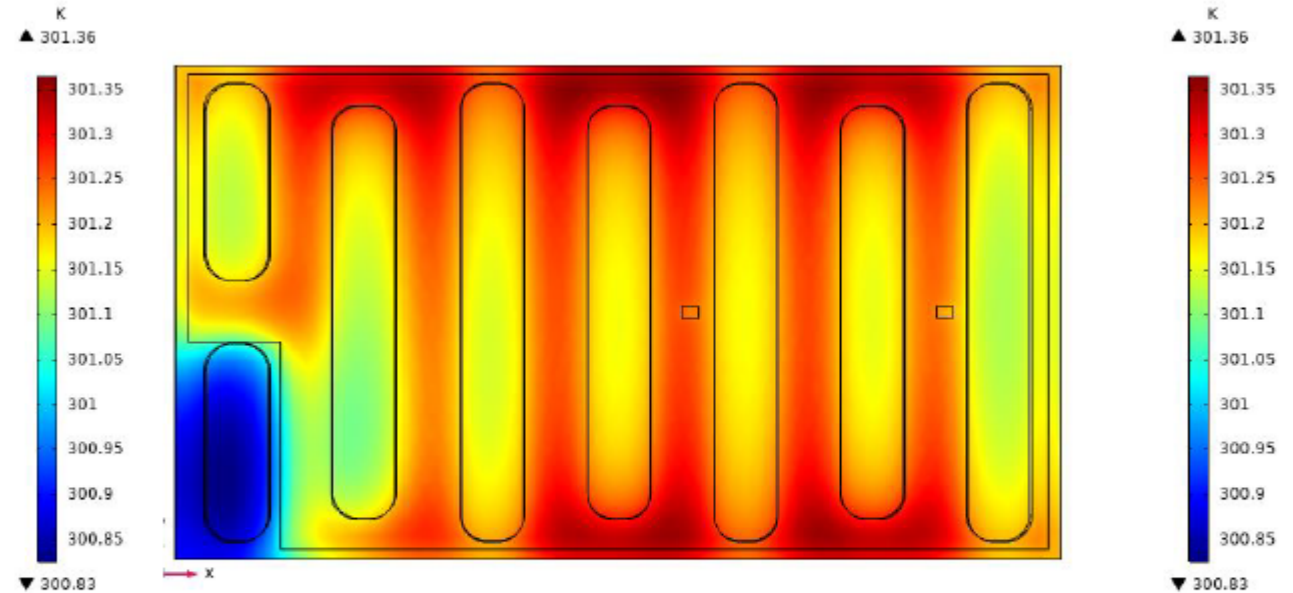
Steady-state $R_{\Theta JB}$

Typical $R_{\Theta JB} = 1.4 \text{ } ^\circ\text{C/W}$

Volume: Temperature (K)



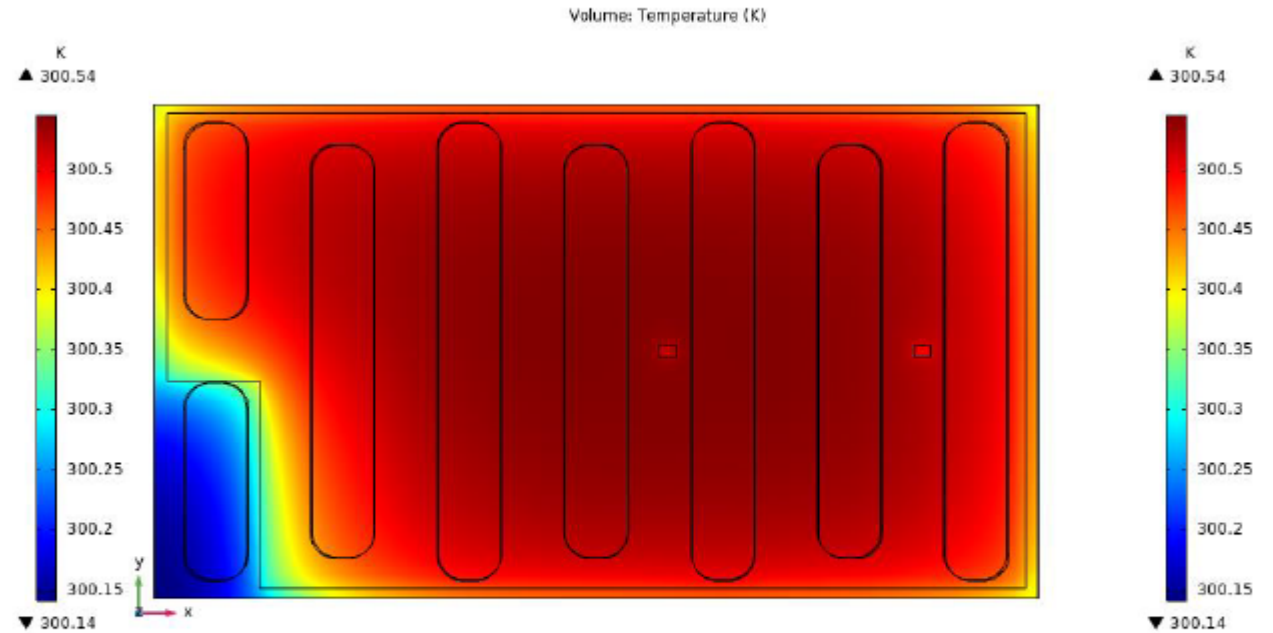
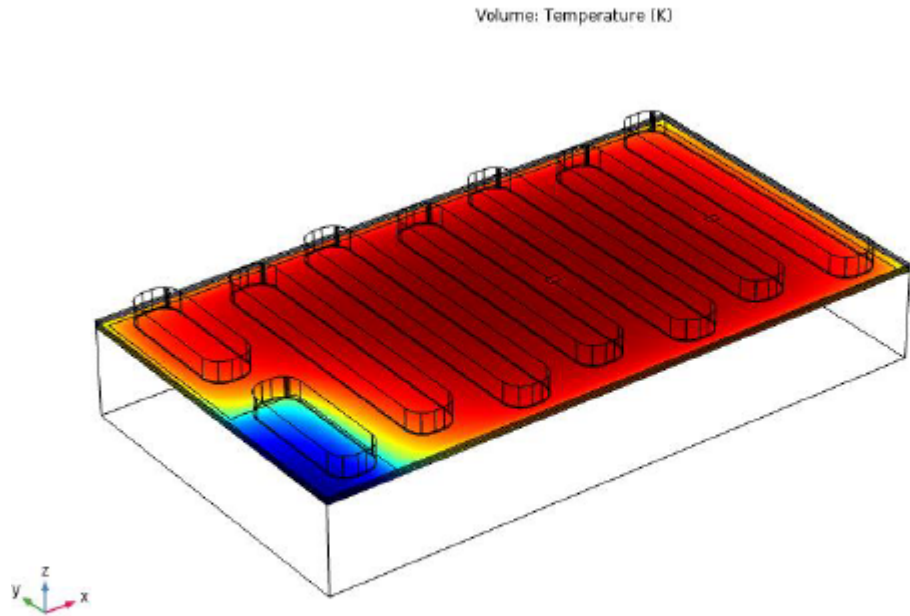
Volume: Temperature (K)



- Operating condition: Power = 1 W in the active area.
- Boundary condition: Temperature of top of solder bumps set to be 300 K.

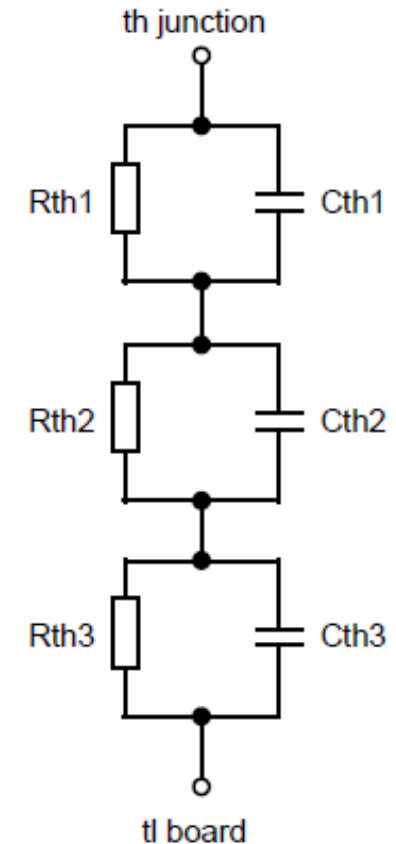
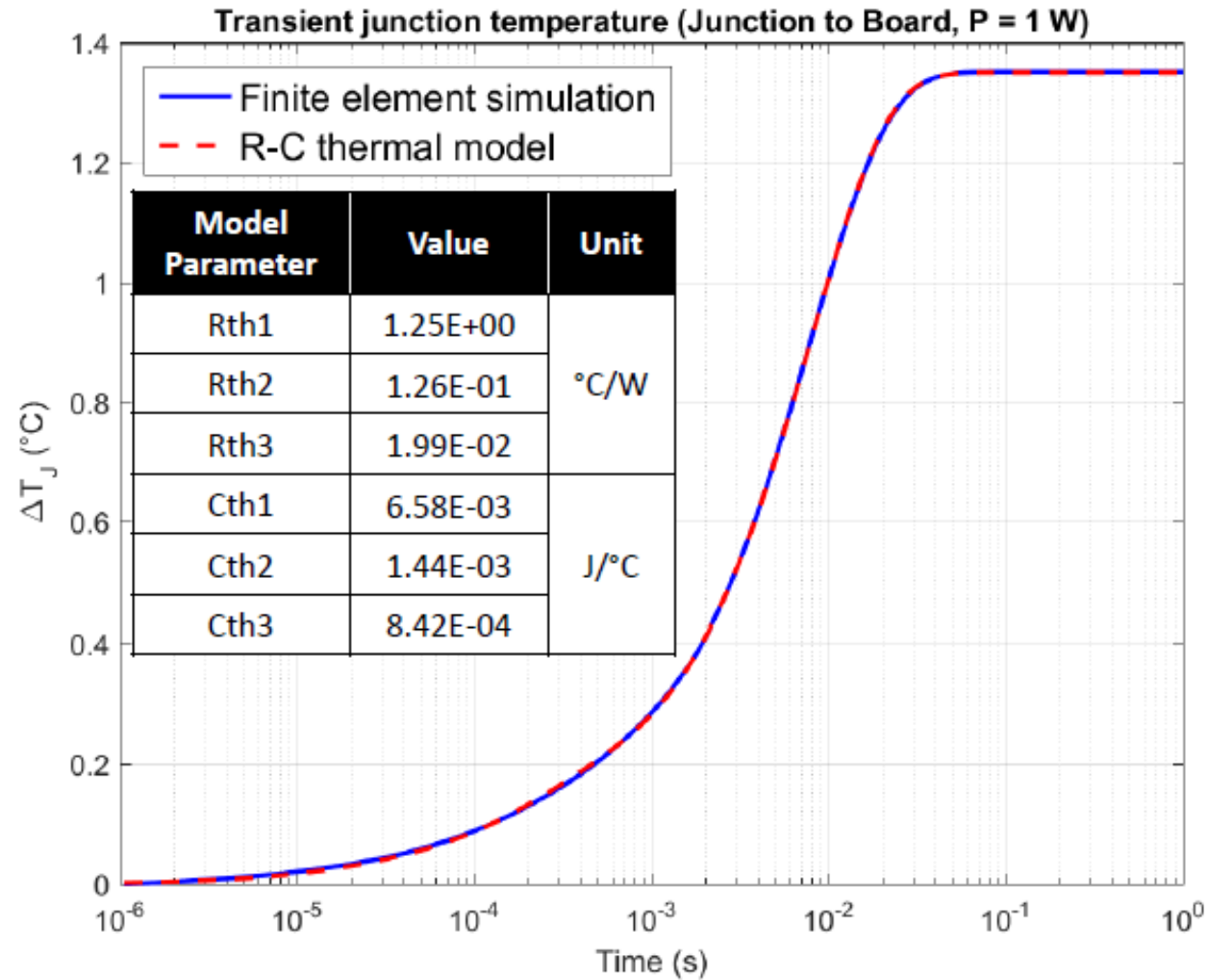
Steady-state $R_{\theta JC}$

Typical $R_{\theta JC} = 0.5 \text{ } ^\circ\text{C/W}$

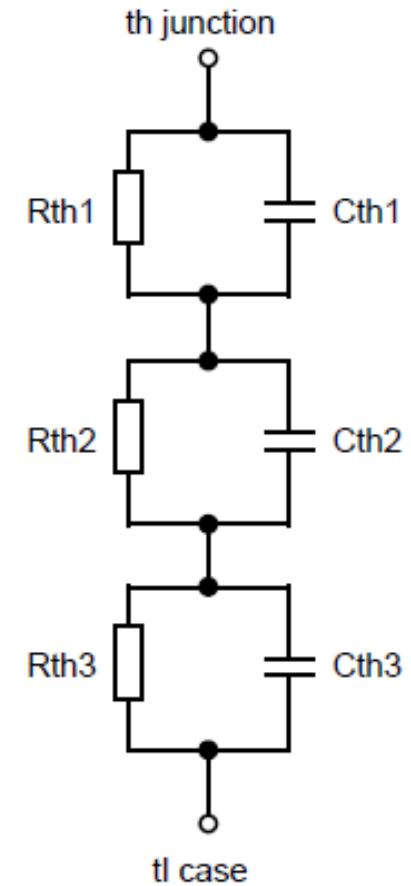
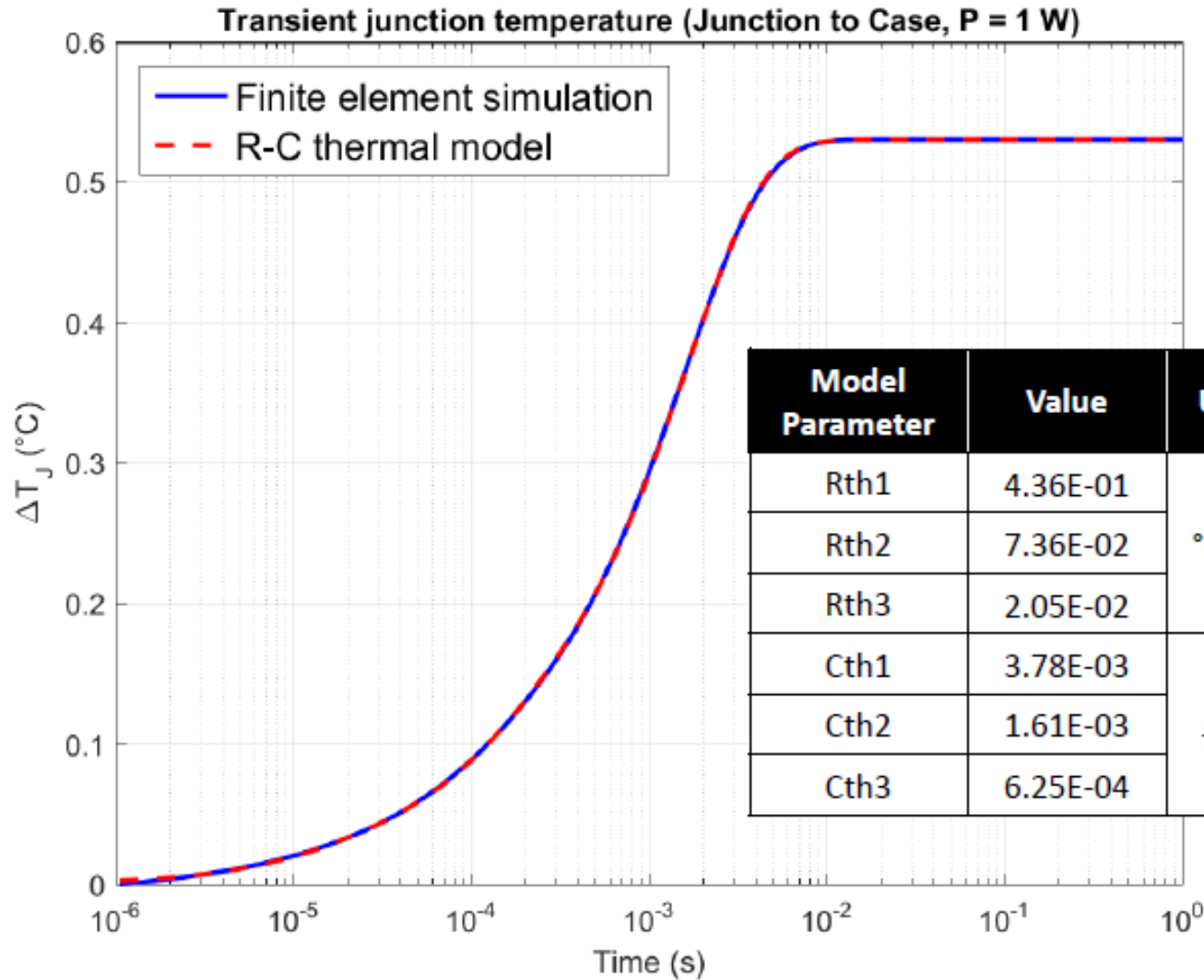


- Operating condition: Power = 1 W in the active area.
- Boundary condition: Temperature of the device backside set to be 300 K.

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



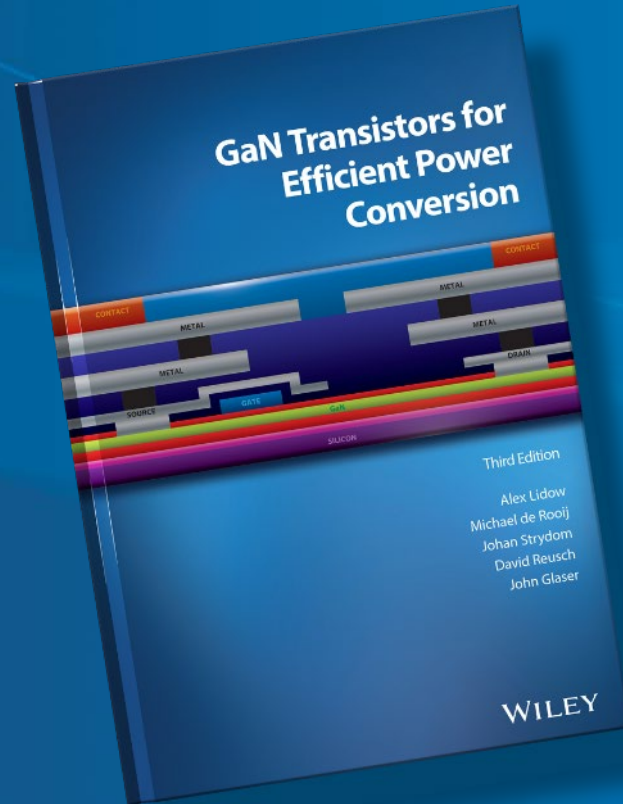
$Z_{\theta_{JC}}$ R-C thermal model



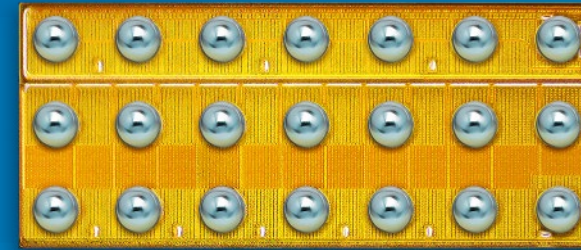


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