

EPC2107 Thermal Simulations $R_{\Theta JB} \& R_{\Theta JC}$

 $R_{\Theta JB}$



Junction Temperature under 1W Internal Dissipation

Subdom ain: Temperature [K] Max: 332.84 $R_{\Theta JB} = 32.8 \text{ C/W}$ (using 332.5 max temperature rise in junction) 332 1 W total is dissipated in the entire device, with 331.5 the same power density in the all 3 active 331 regions 330.5 Top of bumps are set to 300K, backside of 330 silicon substrate is floating 329.5 329 -5 0 5 x 1e-4

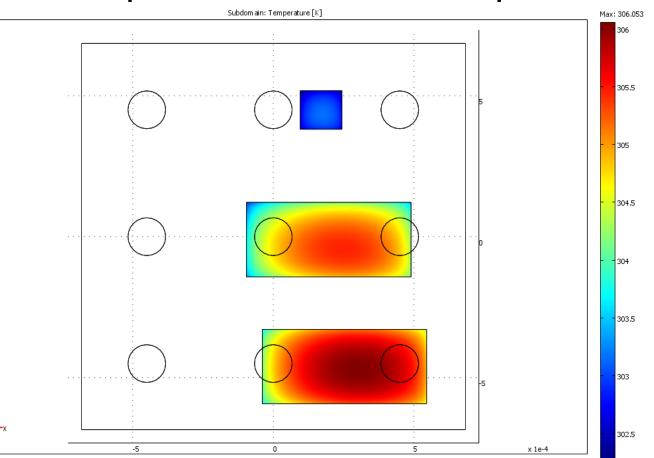
 $R_{\Theta JC}$



R_{θJC} = 6.05 C/W (using max temperature rise in junction) 1 W total is dissipated

in the entire device, with the same power density in the all 3 active regions

Top of bumps are thermally floating, backside of silicon substrate set to 300K



Junction Temperature under 1W Internal Dissipation

Min: 302.27

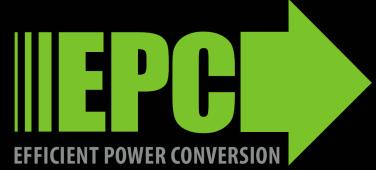
Transient Simulations



Transient simulations conducted for both $R_{\Theta JB}$ and $R_{\Theta JC}$ modes

In both cases, 1 W total is dissipated in the device, with the same volume power density in both FETs





The end of the road for silicon.....

is the beginning of the eGaN FET journey!

