

# EPC2108 Thermal Simulations

## $R_{\theta JB}$ & $R_{\theta JC}$

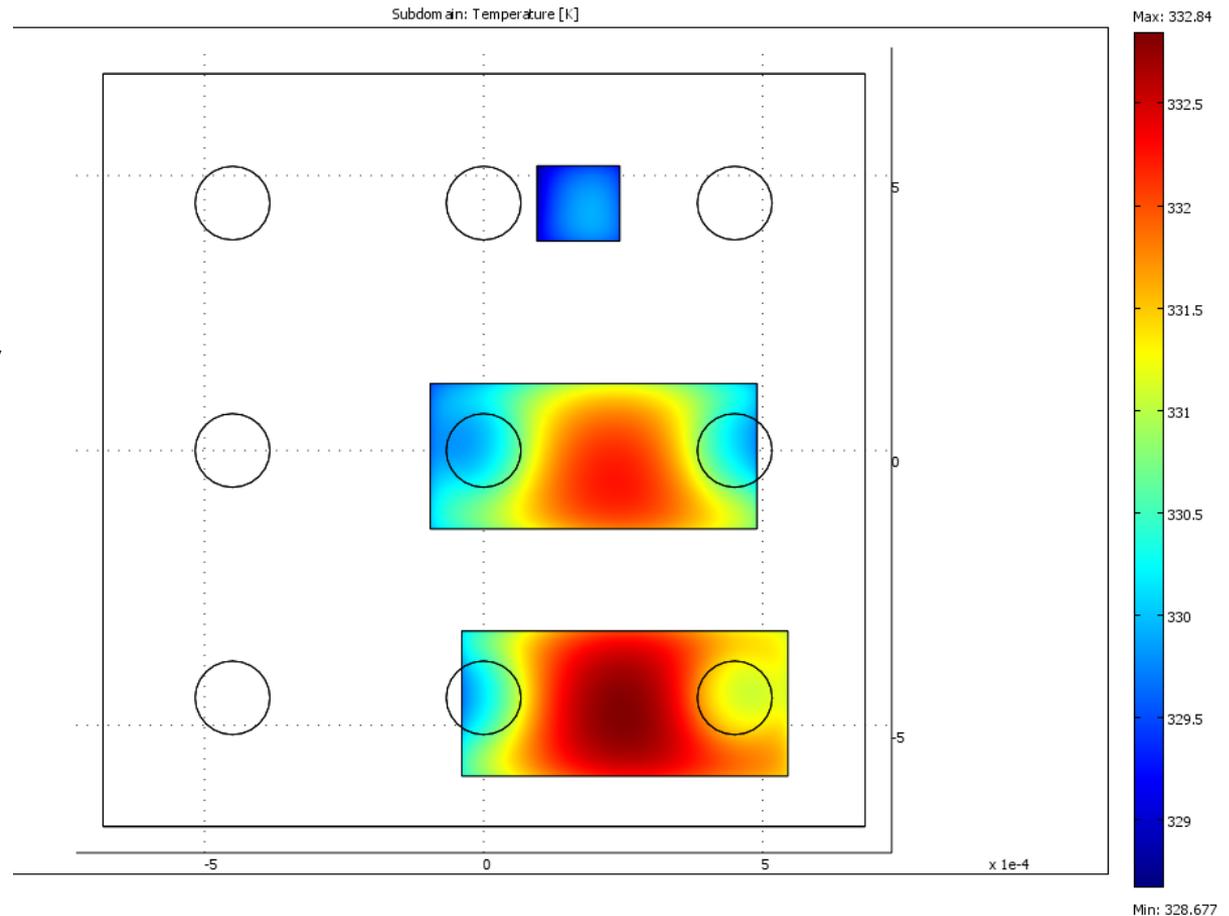
$$R_{\Theta JB}$$

## Junction Temperature under 1W Internal Dissipation

$R_{\Theta JB} = 32.8 \text{ C/W}$  (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 set to  
300K, backside of  
silicon substrate is  
floating



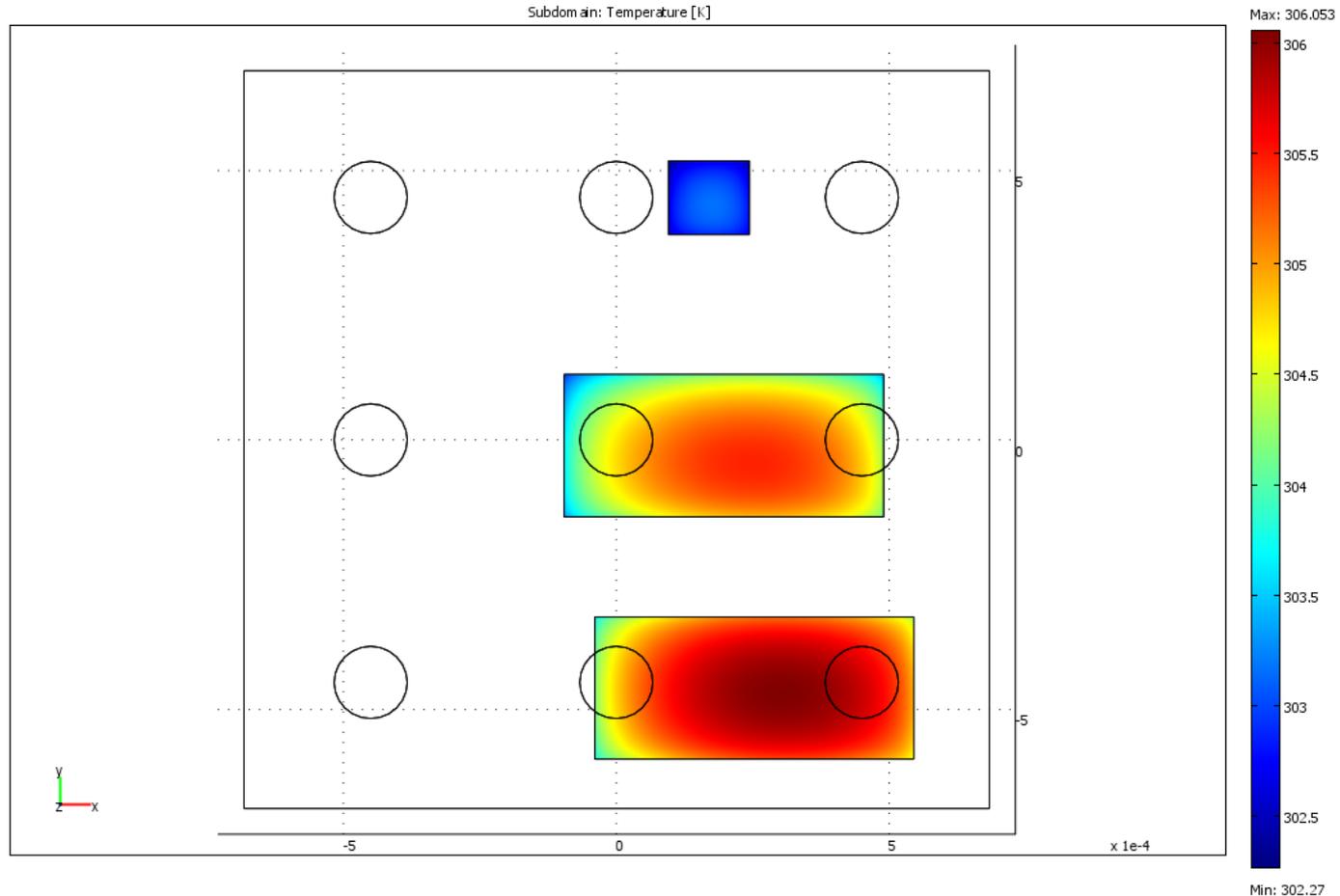
# $R_{\theta JC}$

$R_{\theta JC} = 6.05 \text{ C/W}$   
(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

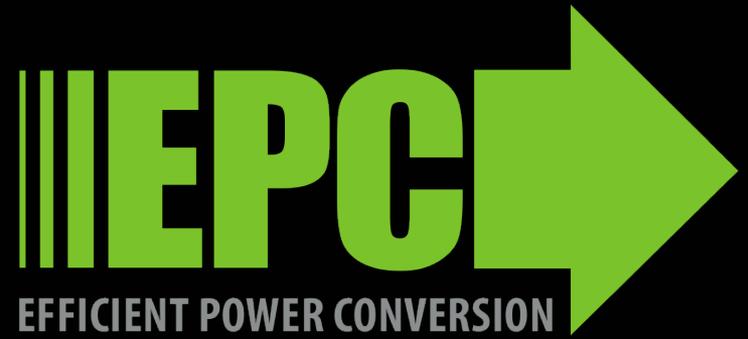
Top of bumps are thermally floating, backside of silicon substrate set to 300K

## Junction Temperature under 1W Internal Dissipation



**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!*

