EPC2039 Thermal Model $R_{\theta JB}$ & $R_{\theta JC}$
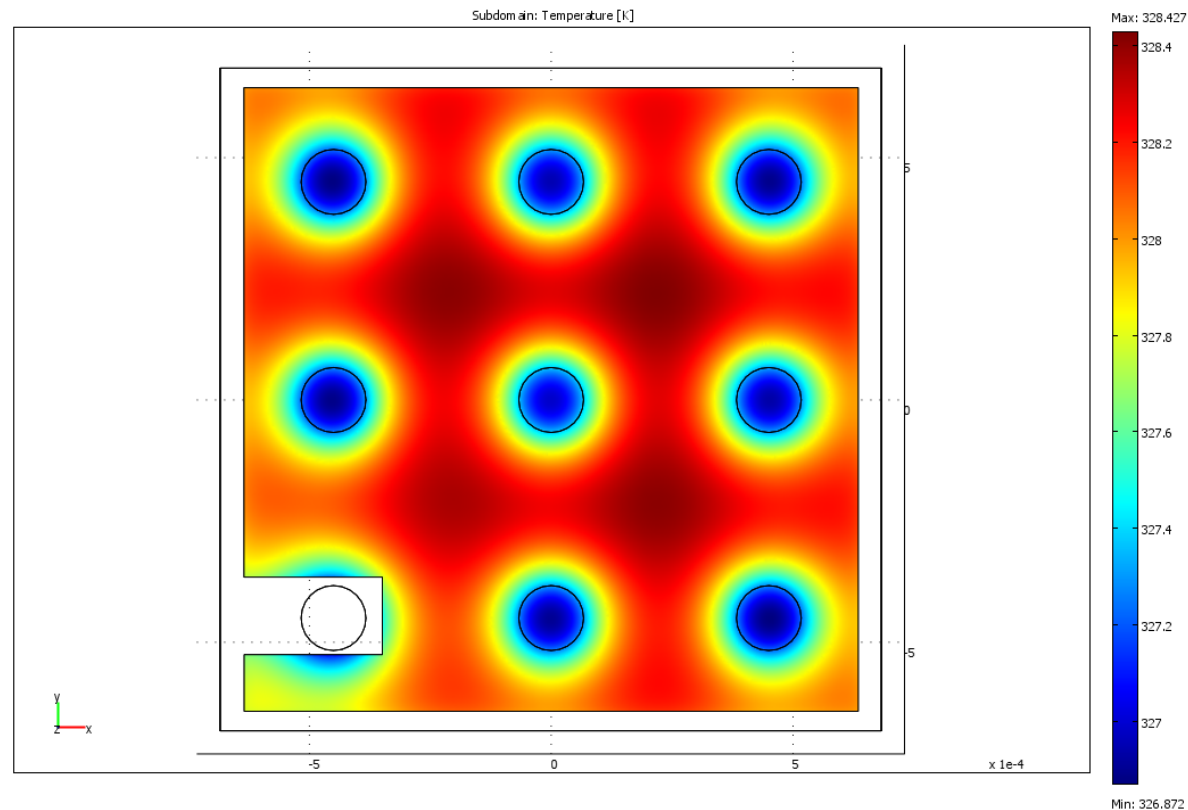
Steady State $R_{\theta JB}$

Junction Temperature under 1W Internal Dissipation

$$R_{\theta JB} = 28.4 \,^{\circ}\, C/W$$

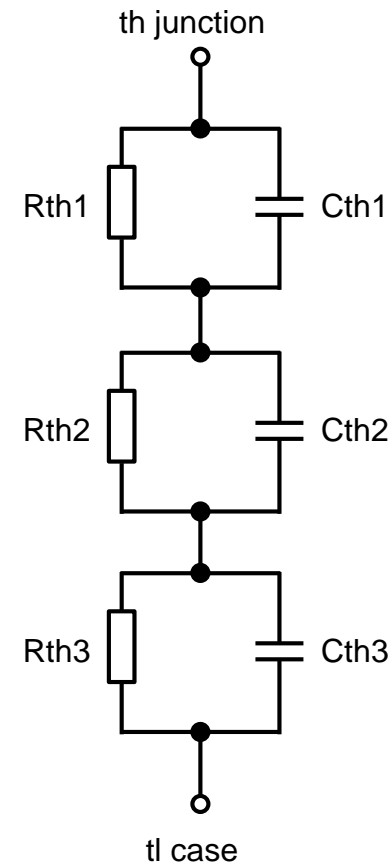**(using max temperature rise in junction)**

- **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**

Subdomain: Temperature [K]

Max: 328.427

Min: 326.872

Transient $R_{\theta JB}$

Transient junction temperature as a function of time under 1W load

Fitting parameter	Value
Rth1	28.4 °C/W
Cth1	2.81E-3 J/°C
Rth2	2.07E-2 °C/W
Cth2	3.68E-3 J/°C
Rth3	1.98E-2 °C/W
Cth3	3.02E-3 J/°C

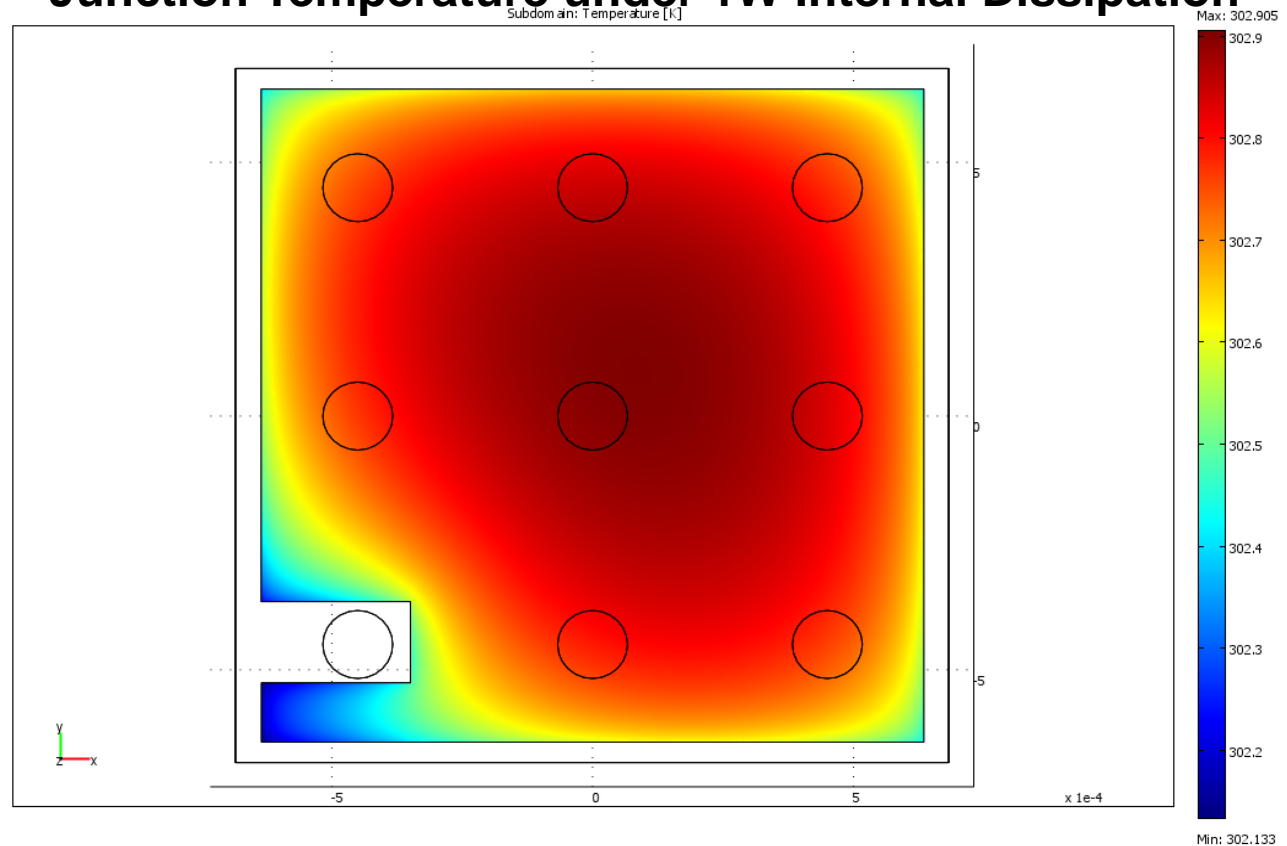th junction

Rth1   Cth1

Rth2   Cth2

Rth3   Cth3

tl case

Steady State R$_{\theta JC}$

Junction Temperature under 1W Internal Dissipation

R$_{\theta JC}$ = 2.9 ˚ 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**

Transient $R_{\theta JC}$

Transient junction temperature as a function of time under 1W load

Fitting parameter	Value
Rth1	2.69 °C/W
Cth1	1.41E-3 J/°C
Rth2	0.207 °C/W
Cth2	1.8E-2 J/°C
Rth3	3.12E-3 °C/W
Cth3	1.68E-3 J/°C

th junction

Rth1   Cth1

Rth2   Cth2

Rth3   Cth3

tl case