

Thermal Simulation Analysis

■ **Definition :**

$$\theta_{JA} = (T_j - T_a) / P$$

$$\theta_{JC} = (T_j - T_c) / P$$

θ_{JA} : Junction-to-Ambient Thermal Resistance

θ_{JC} : Thermal resistance from junction to case

T_j : Temperature of Junction

T_a : Temperature of Ambient

T_c : Temperature of Case

P: Loading Power

■ **Analysis Result :**

Package Dimensions		Thermal Conductivity of Material (W/m-°C)	
Package Size	10.16 x 22.22 mm	Chip (Si)	147
Chip Size	158 x 335mil	Lead Frame(A42)	15
Die thickness	0.25 mm	Adhesive (FG100)	0.19
Lead Frame	0.127mm	Mold Compound (G631C)	0.92
PCB Board (4 layers)	76.2 x 114.3x 1.6 mm		

Condition : input power = 1watt

Ambient	25°C				85°C			
Air Speed (m/s)	0	1	2	3	0	1	2	3
θ_{ja} (°C/watt)	57	52	48.6	46.6	55.2	52	48.6	46.6
$T_{junction}$ (°C)	82	77	73.6	71.6	140	137	134	132
θ_{jc} (°C/watt)	11.8				11.8			
θ_{jb} (°C/watt)	45.7				45.7			

Condition : input power = 0.5watt

Ambient	25°C				85°C			
Air Speed (m/s)	0	1	2	3	0	1	2	3
θ_{ja} (°C/watt)	58.5	52	48.6	46.6	56.4	52	48.6	46.6
$T_{junction}$ (°C)	54.3	51	49.3	48.3	113	111	109	108
θ_{jc} (°C/watt)	11.8				11.8			
θ_{jb} (°C/watt)	45.7				45.7			

Note: The data result may be used only for proximate reference.