How to Estimate Junction Temperature Using Psi J_T

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From the Datasheet

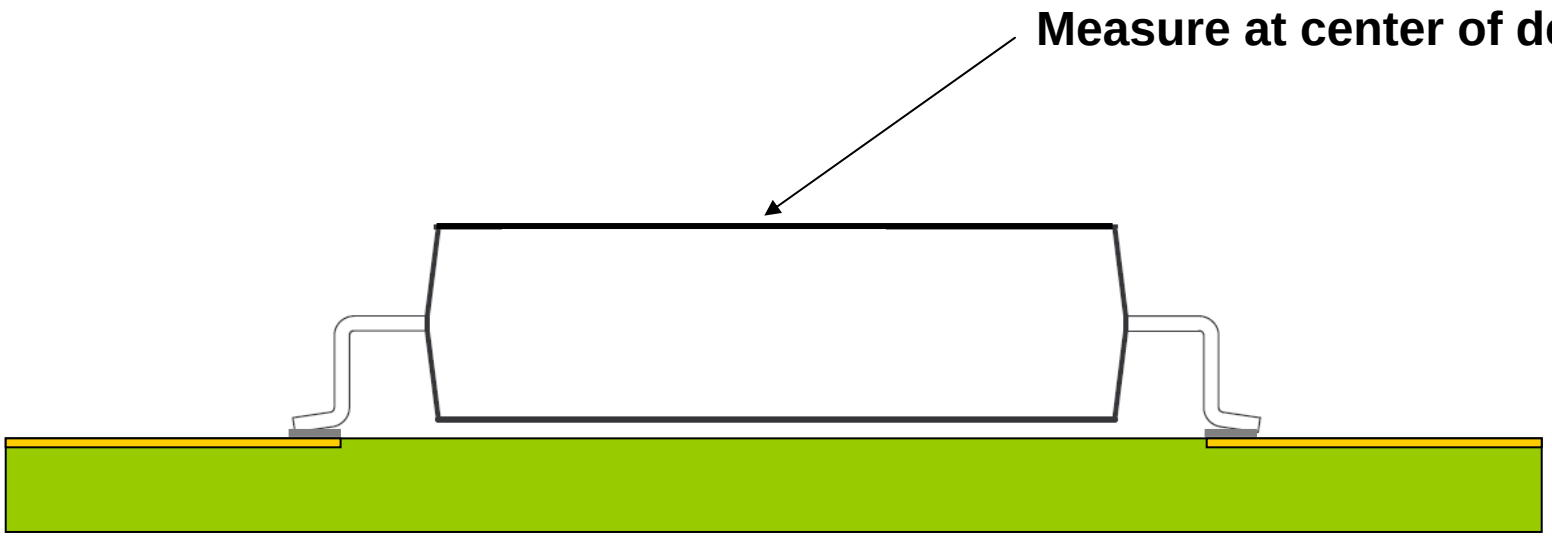
THERMAL INFORMATION

THERMAL METRIC[1][2]		TAS5701 PAP (64 PINS)	UNITS
θ_{JA}	Junction-to-ambient thermal resistance	27.2	°C/W
θ_{JCtop}	Junction-to-case (top) thermal resistance	16	
θ_{JB}	Junction-to-board thermal resistance	13	
ψ_{JT}	Junction-to-top characterization parameter	0.1	
ψ_{JB}	Junction-to-board characterization parameter	7.9	
θ_{JCbot}	Junction-to-case (bottom) thermal resistance	0.9	

(1) For more information about traditional and new thermal metrics, see the *IC Package Thermal Metrics* application report, SPRA953.
(2) For thermal estimates of this device based on PCB copper area, see the TI PCB Thermal Calculator.

Find Psi J_T value

In the Labs



Measure device case temperature T_{case} using IR camera or thermocouple.

Estimate Junction Temp

$$T_{Junc} = T_{case} + \Psi_{jt} \; x \; Power$$

Junction Temp = Case Temp + Psi J_T x Device Power

* Note that Theta J_C is NOT the right parameter to use for this analysis *

Learn More

- For more details, check out the thermal application note here :

  http://www.ti.com/lit/pdf/spra953

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