

R-C Thermal Model Parameters

DESCRIPTION

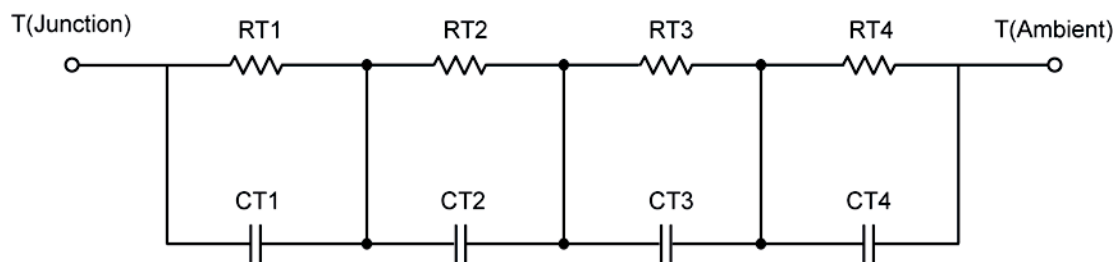
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse Transient Thermal Impedance curves for the MOSFET.

R-C values for the electrical circuit in the Foster/Tank and Cauer/Filter configurations are included.

Note:

For a detailed explanation of implementing these values in P-SPICE, refer to [Application Note AN609 Thermal Simulations Of Power MOSFETs on P-SPICE Platform](#).

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	3.7639	N/A	3.6633
RT2	23.9524	N/A	2.9878
RT3	18.5630	N/A	9.5361
RT4	48.7208	N/A	3.8127
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	259.5429 u	N/A	250.5520 u
CT2	31.6163 m	N/A	84.0574 m
CT3	3.7592 m	N/A	1.5995 m
CT4	1.4852	N/A	4.9962 m

This document is intended as a SPICE modeling guideline and does not constitute a commercial product data sheet. Designers should refer to the appropriate data sheet of the same number for guaranteed specification limits.

R-C THERMAL MODEL FOR FILTER CONFIGURATION**R-C VALUES FOR FILTER CONFIGURATION**

Thermal Resistance ($^{\circ}\text{C}/\text{W}$)			
Junction to	Ambient	Case	Foot
RF1	4.6007	N/A	6.8530
RF2	22.5107	N/A	11.4563
RF3	20.6711	N/A	1.2460
RF4	47.2176	N/A	444.6382 m
Thermal Capacitance (Joules/ $^{\circ}\text{C}$)			
Junction to	Ambient	Case	Foot
CF1	231.3325 u	N/A	254.9952 u
CF2	3.3774 m	N/A	1.6097 m
CF3	34.3085 m	N/A	301.6984 m
CF4	1.5346	N/A	22.7700 m

Note: NA indicates not applicable

Reference:

[1] "A Simple Method of Generating Thermal Models for a Power MOSFET" by Wharton McDaniel and Kandarp Pandya, IEEE / SEMITHERM 2002

