



R-C Thermal Model Parameters

DESCRIPTION

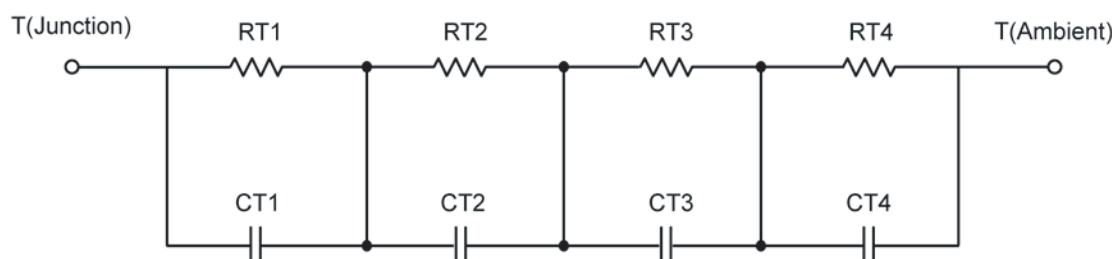
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse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

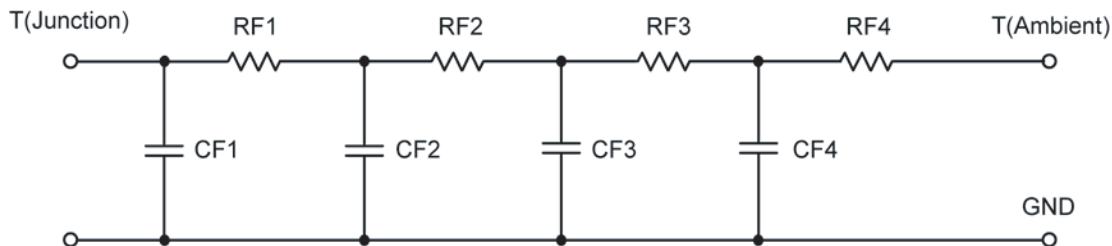
For a detailed explanation of implementing these values in P-SPICE, refer to [Application Note AN609 Thermal Simulations Of Power MOSFETs on P-SPICE Platform](#).

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	10.8265	N/A	1.5271
RT2	27.9865	N/A	9.8875
RT3	27.1895	N/A	11.3544
RT4	29.0443	N/A	4.1856
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.2218 m	N/A	460.8589 μ
CT2	34.6844 m	N/A	7.5559 m
CT3	1.7620	N/A	104.8735 m
CT4	2.6514	N/A	893.7954 μ

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 (°C/W)			
Junction to	Ambient	Case	Foot
RF1	10.1229	N/A	6.1153
RF2	29.9305	N/A	10.4867
RF3	31.6783	N/A	9.9682
RF4	23.0782	N/A	327.4199 m
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	569.6012 μ	N/A	407.4008 μ
CF2	30.2683 m	N/A	6.1887 m
CF3	916.3560 m	N/A	104.4619 m
CF4	856.5287 m	N/A	26.4625 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

