

R-C Thermal Model Parameters

DESCRIPTION

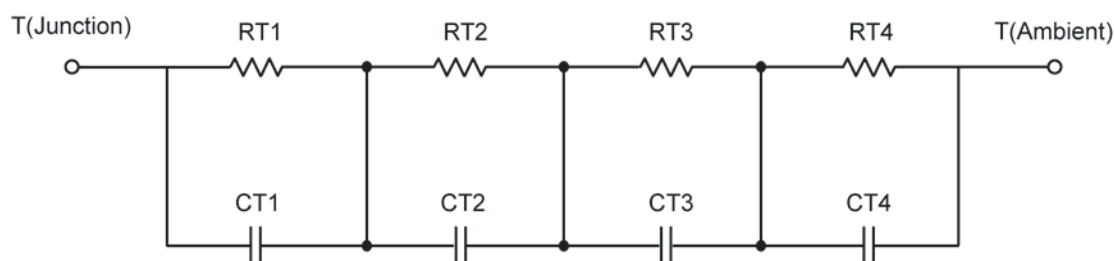
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse 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	17.0178	N/A	6.6243
RT2	28.0613	N/A	4.6782
RT3	9.4155	N/A	7.5231
RT4	25.5054	N/A	2.1744
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	118.8809 m	N/A	353.7164 m
CT2	2.3931	N/A	18.6846 m
CT3	25.9049 m	N/A	91.4534 m
CT4	3.5206	N/A	21.3292 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 (°C/W)			
Junction to	Ambient	Case	Foot
RF1	12.1238	N/A	1.5044
RF2	17.9102	N/A	7.4671
RF3	40.2587	N/A	10.1929
RF4	9.7073	N/A	1.8356
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	19.5936 m	N/A	7.1379 m
CF2	93.5428 m	N/A	3.2192 m
CF3	1.4446	N/A	89.7423 m
CF4	877.7160 m	N/A	609.3153 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

