



R-C Thermal Model Parameters

DESCRIPTION

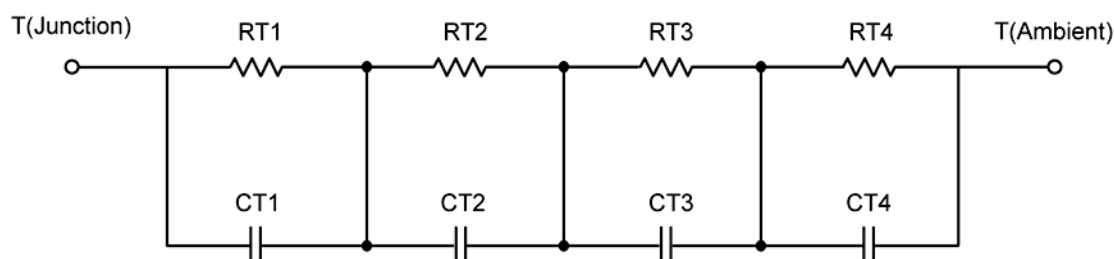
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse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

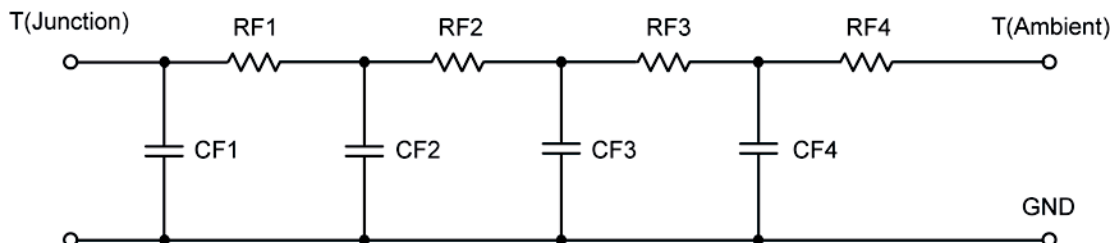
For a detailed explanation of implementing these values in P-SPICE, refer to [Application Note AN609 Thermal Simulations Of Power MOSFETs on P-SPICE Platform](#).

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	3.4618	N/A	10.8734
RT2	11.1535	N/A	2.6037
RT3	42.9409	N/A	7.5331
RT4	52.4438	N/A	18.9898
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.5141 m	N/A	11.5317 m
CT2	10.1484 m	N/A	1.0016 m
CT3	25.8725 m	N/A	8.8518 m
CT4	1.3501	N/A	44.6029 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	12.7092	N/A	3.4606
RF2	29.4888	N/A	17.9065
RF3	18.5746	N/A	13.8033
RF4	49.2274	N/A	4.8296
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	2.8419 m	N/A	675.8404 u
CF2	13.0469 m	N/A	3.5607 m
CF3	60.0334 m	N/A	25.6769 m
CF4	1.2807	N/A	105.2815 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

