

R-C Thermal Model Parameters

DESCRIPTION

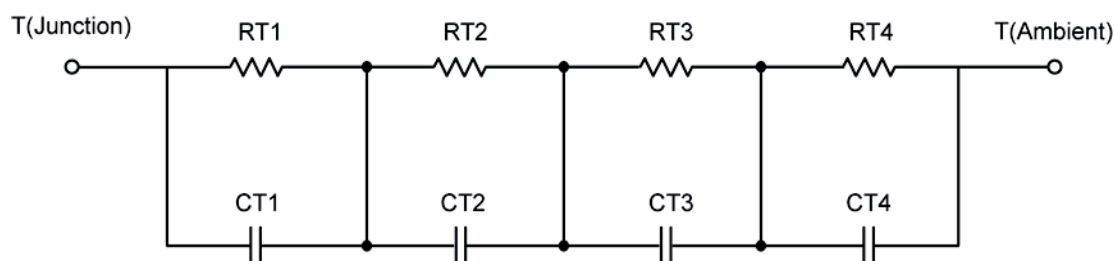
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse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

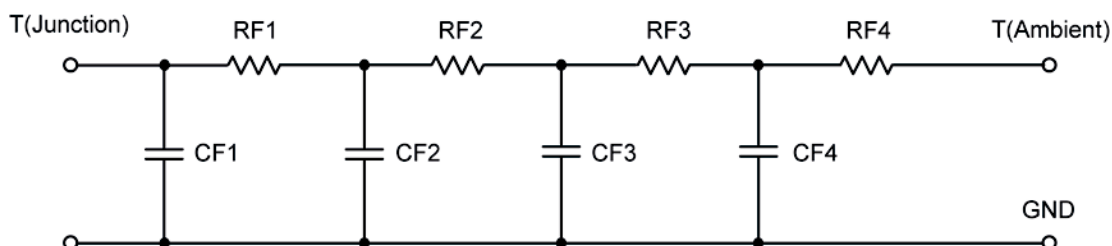
For a detailed explanation of implementing these values in P-SPICE, refer to [Application Note AN609 Thermal Simulations Of Power MOSFETs on P-SPICE Platform](#).

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	8.6338	N/A	5.0373
RT2	4.3408	N/A	1.4414
RT3	14.5718	N/A	1.0694
RT4	51.9111	N/A	8.4459
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	488.0491 m	N/A	25.0142 m
CT2	20.1410 m	N/A	22.2793 m
CT3	70.9397 m	N/A	6.6429
CT4	1.7874	N/A	167.4329 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	7.5375	N/A	1.9629
RF2	18.6718	N/A	5.3595
RF3	37.9610	N/A	5.0585
RF4	16.0865	N/A	3.5694
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	14.1157 m	N/A	8.5275 m
CF2	56.7512 m	N/A	8.9400 m
CF3	1.1838 m	N/A	120.4630 m
CF4	6.3004	N/A	321.4540 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

