



R-C Thermal Model Parameters

DESCRIPTION

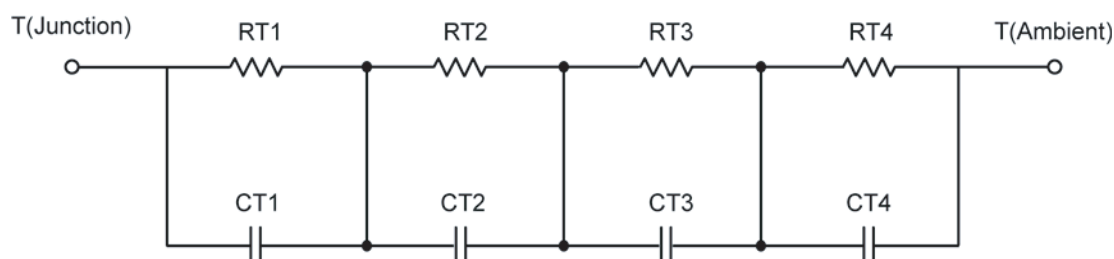
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse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

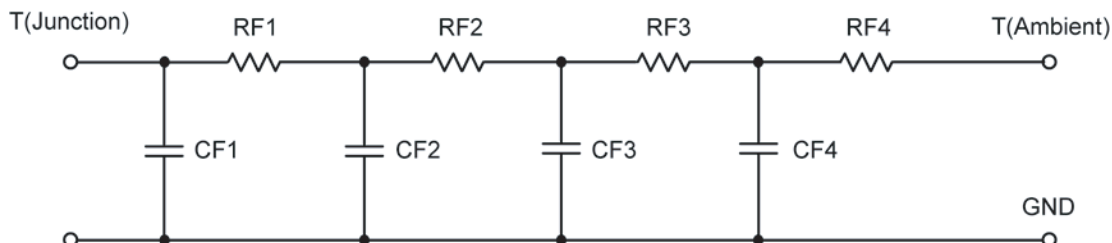
For a detailed explanation of implementing these values in P-SPICE, refer to [Application Note AN609 Thermal Simulations Of Power MOSFETs on P-SPICE Platform](#).

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	18.3282	N/A	15.1545
RT2	7.6334	N/A	2.5411
RT3	31.5848	N/A	12.9911
RT4	52.3637	N/A	9.2396
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	19.9996 m	N/A	5.2133 m
CT2	3.1167 m	N/A	1.0338 m
CT3	46.7157 m	N/A	39.6919 m
CT4	1.2578	N/A	112.4916 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	5.9976	N/A	3.3188
RF2	24.9889	N/A	20.2808
RF3	30.5384	N/A	8.8738
RF4	48.4689	N/A	7.4798
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	1.4066 m	N/A	845.5538 u
CF2	7.8263 m	N/A	3.4963 m
CF3	37.1485 m	N/A	32.0332 m
CF4	1.4318	N/A	45.9818 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

