

R-C Thermal Model Parameters

DESCRIPTION

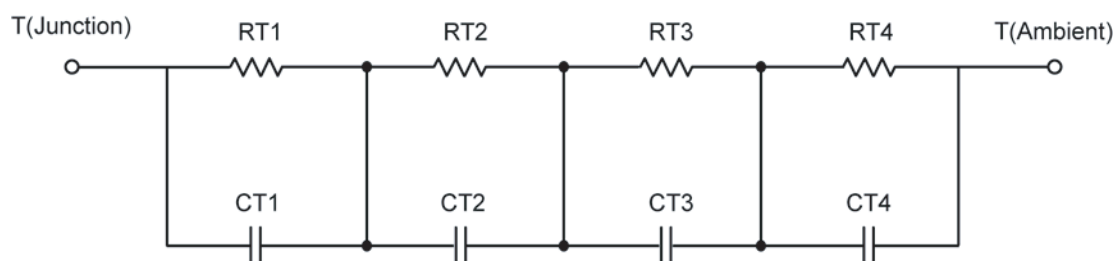
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse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

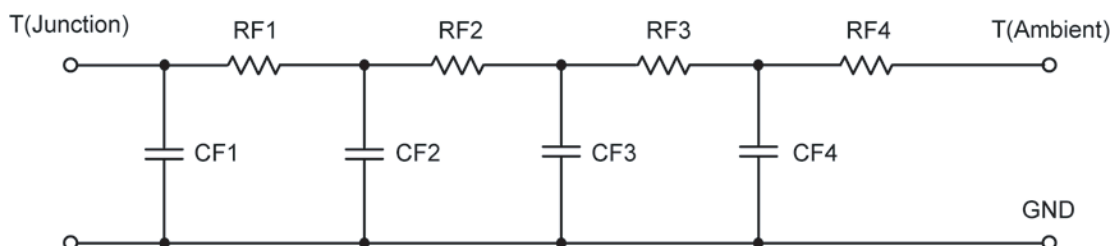
For a detailed explanation of implementing these values in P-SPICE, refer to [Application Note AN609 Thermal Simulations Of Power MOSFETs on P-SPICE Platform](#).

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	20.2318	N/A	11.8651
RT2	5.7017	N/A	1.6244
RT3	14.7588	N/A	11.5500
RT4	49.2096	N/A	3.0124
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	101.7504 m	N/A	7.4085 m
CT2	4.7284 m	N/A	1.6130 m
CT3	22.9678 m	N/A	67.9593 m
CT4	1.6013	N/A	1.6010

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	7.1064	N/A	1.9469
RF2	14.7132	N/A	12.8865
RF3	20.7359	N/A	7.1938
RF4	47.2578	N/A	5.8516
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	3.5241 m	N/A	689.7305 u
CF2	10.7696 m	N/A	5.7338 m
CF3	62.8186 m	N/A	39.4624 m
CF4	1.5653	N/A	265.0571 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

