

R-C Thermal Model Parameters

DESCRIPTION

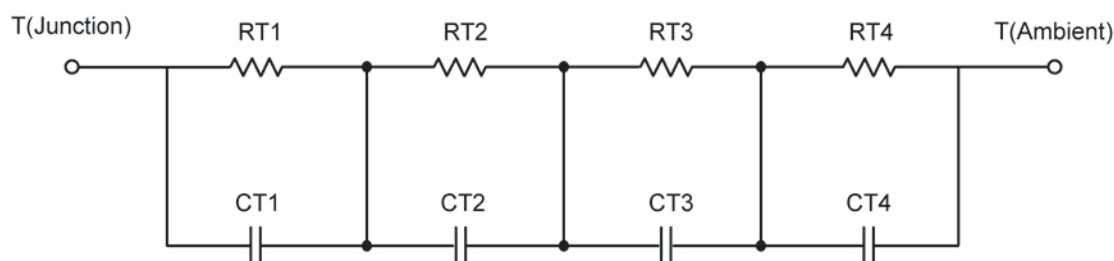
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse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

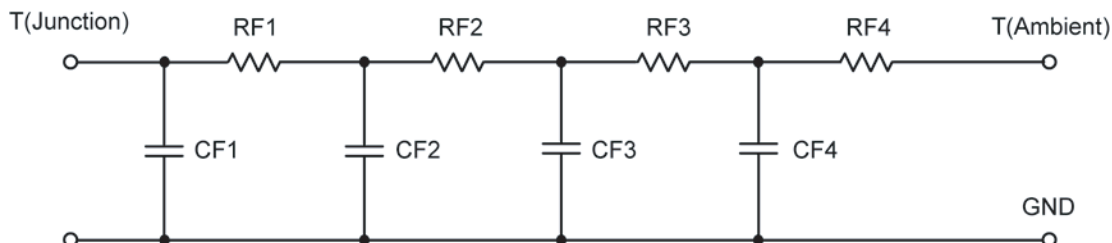
For a detailed explanation of implementing these values in P-SPICE, refer to [Application Note AN609 Thermal Simulations Of Power MOSFETs on P-SPICE Platform](#).

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	14.1288	N/A	1.8963
RT2	13.5305	N/A	12.6114
RT3	30.7962	N/A	9.1299
RT4	51.5445	N/A	16.3624
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	3.1080 m	N/A	325.4874 u
CT2	414.6661 m	N/A	4.7876 m
CT3	26.9668 m	N/A	32.6343 m
CT4	1.3647	N/A	126.0560 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	19.0374	N/A	3.0573
RF2	33.3211	N/A	19.0219
RF3	19.2621	N/A	14.6413
RF4	38.3794	N/A	3.2795
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	3.3716 m	N/A	494.8409 u
CF2	25.6313 m	N/A	4.3714 m
CF3	546.4488 m	N/A	79.1151 m
CF4	1.1315	N/A	379.6855 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

