

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:

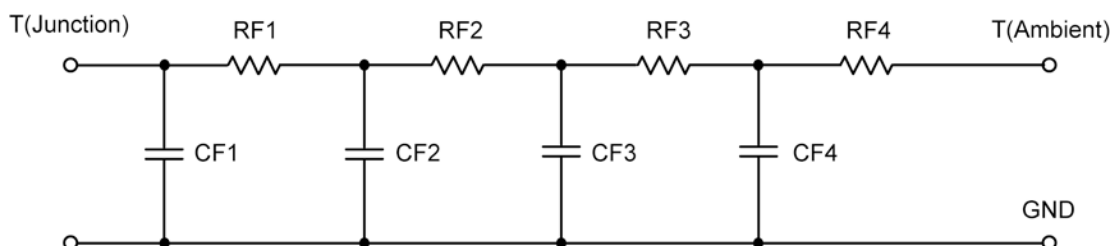
For a detailed explanation of implementing these values in P-SPICE, refer to [Application Note AN609 Thermal Simulations Of Power MOSFETs on P-SPICE Platform](#).

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	18.5502	N/A	11.8957
RT2	7.2486	N/A	6.6901
RT3	14.0386	N/A	4.7691
RT4	55.1626	N/A	1.6451
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	65.8916 m	N/A	70.1304 m
CT2	2.8162 m	N/A	9.9171 m
CT3	77.0245 m	N/A	35.3032 m
CT4	1.0918	N/A	1.2666 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 ($^{\circ}\text{C}/\text{W}$)			
Junction to	Ambient	Case	Foot
RF1	8.6365	N/A	1.3857
RF2	20.3536	N/A	8.1392
RF3	14.5876	N/A	8.4145
RF4	51.4223	N/A	7.0606
Thermal Capacitance (Joules/ $^{\circ}\text{C}$)			
Junction to	Ambient	Case	Foot
CF1	2.9246 m	N/A	820.3731 u
CF2	28.3790 m	N/A	4.6279 m
CF3	41.6616 m	N/A	10.8760 m
CF4	1.1330	N/A	118.6760 m

Note: NA indicates not applicable

