



R-C Thermal Model Parameters

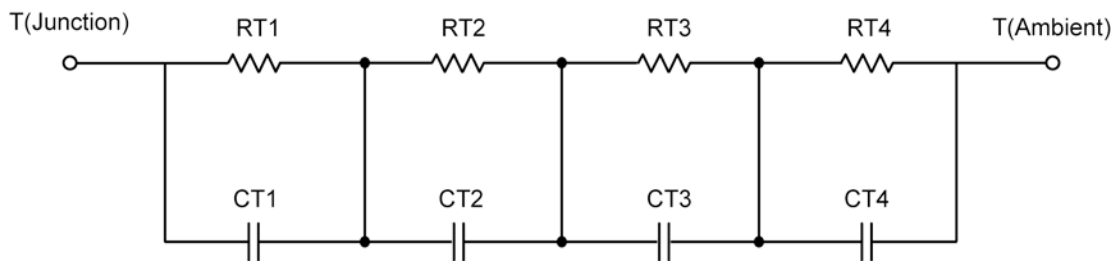
DESCRIPTION

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

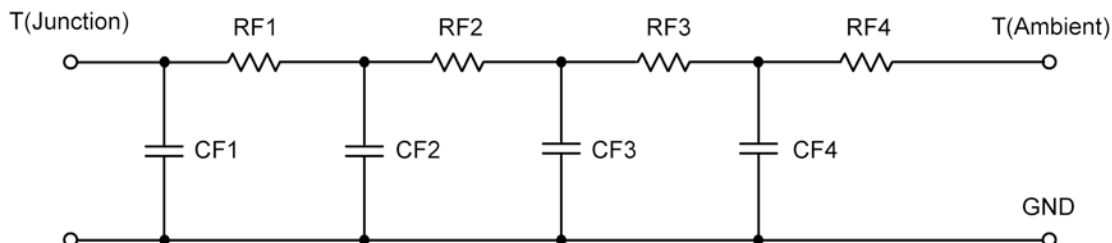


R-C VALUES FOR TANK CONFIGURATION					
Thermal Resistance (°C/W)					
Junction to	Ambient Nch	Ambient Pch	Foot	Case Nch	Case Pch
RT1	4.9688	3.5658	N/A	2.4284	2.0566
RT2	15.3066	15.6366	N/A	3.1136	1.3376
RT3	6.0388	6.0849	N/A	1.5031	1.2648
RT4	26.6858	24.7127	N/A	954.9000 m	641.0000 m
Thermal Capacitance (Joules/°C)					
Junction to	Ambient Nch	Ambient Pch	Foot	Case Nch	Case Pch
CT1	477.6660 u	856.2567 u	N/A	3.3533 m	32.2810 m
CT2	1.1178	1.1426	N/A	255.1478 u	526.8787 u
CT3	74.1354 m	103.5303 m	N/A	57.2747 m	6.5959 m
CT4	3.9928	4.2571	N/A	57.0590 m	575.3941 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 Nch	Ambient Pch	Foot	Case Nch	Case Pch
RF1	5.2104	3.9518	N/A	3.0440	1.5179
RF2	7.0752	7.2019	N/A	2.2956	1.5066
RF3	23.4423	22.5672	N/A	1.7619	2.0423
RF4	17.2721	16.2791	N/A	898.5000 m	233.2000 m
Thermal Capacitance (Joules/°C)					
Junction to	Ambient Nch	Ambient Pch	Foot	Case Nch	Case Pch
CF1	508.0078 u	927.7765 u	N/A	229.1409 u	448.7527 u
CF2	72.9500 m	105.3962 m	N/A	1.3147 m	5.0665 m
CF3	857.6415 m	822.8737 m	N/A	15.9676 m	30.3608 m
CF4	5.2195	5.3905	N/A	46.8118 m	2.1610

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

