



# R-C Thermal Model Parameters

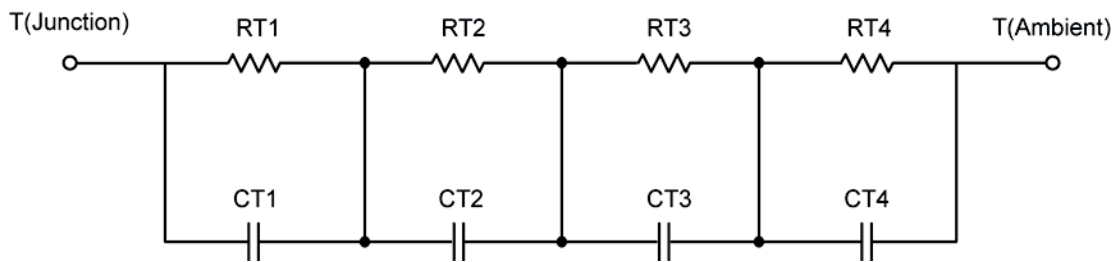
## DESCRIPTION

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.

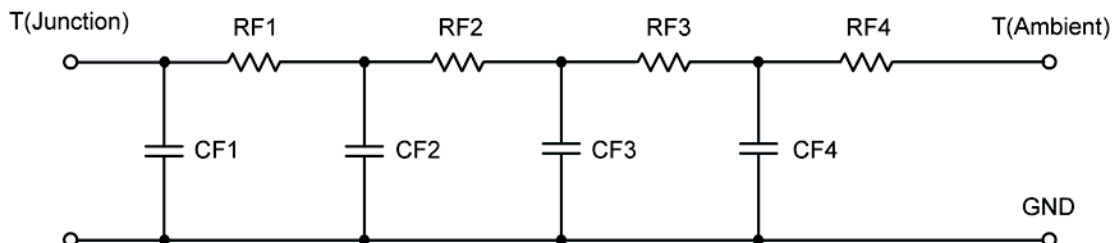
*Note:*  
For a detailed explanation of implementing these values in P-SPICE, refer to [Application Note AN609 Thermal Simulations Of Power MOSFETs on P-SPICE Platform](#).

## 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	5.5748	5.5748	N/A	1.5135	1.5135
RT2	13.8102	13.8102	N/A	1.3841	1.3841
RT3	10.8883	10.8883	N/A	242.3000 m	242.3000 m
RT4	50.8287	50.8287	N/A	3.1601	3.1601
Thermal Capacitance (Joules/°C)					
Junction to	Ambient Nch	Ambient Pch	Foot	Case Nch	Case Pch
CT1	631.1120 u	631.1120 u	N/A	8.2586 m	8.2586 m
CT2	109.2818 m	109.2818 m	N/A	342.2478 u	342.2478 u
CT3	12.3623 m	12.3623 m	N/A	381.1755 m	381.1755 m
CT4	1.5044	1.5044	N/A	4.0445 m	4.0445 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	5.9160	5.9160	N/A	1.8857	1.8857
RF2	14.0773	14.0773	N/A	2.0984	2.0984
RF3	12.5242	12.5242	N/A	1.7408	1.7408
RF4	48.4825	48.4825	N/A	575.1000 m	575.1000 m
Thermal Capacitance (Joules/°C)					
Junction to	Ambient Nch	Ambient Pch	Foot	Case Nch	Case Pch
CF1	553.9215 u	553.9215 u	N/A	314.6453 u	314.6453 u
CF2	10.6933 m	10.6933 m	N/A	2.5415 m	2.5415 m
CF3	125.2665 m	125.2665 m	N/A	1.3227 m	1.3227 m
CF4	1.4092	1.4092	N/A	5.4056 m	5.4056 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

