

## R-C Thermal Model Parameters

### DESCRIPTION

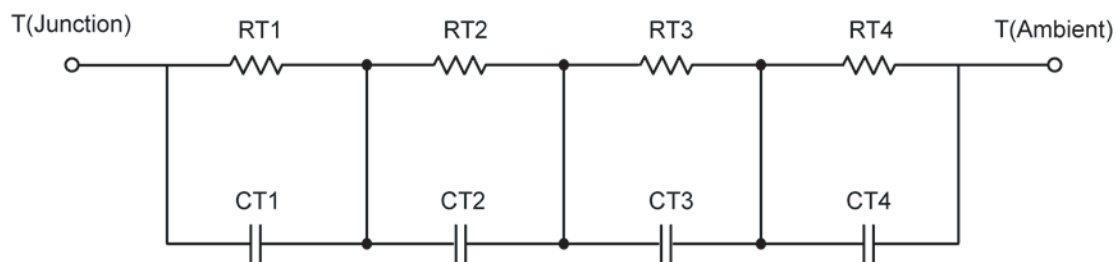
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse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

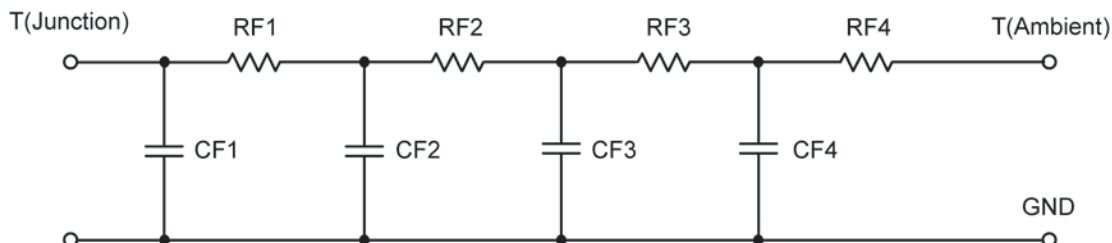
*For a detailed explanation of implementing these values in P-SPICE, refer to [Application Note AN609 Thermal Simulations Of Power MOSFETs on P-SPICE Platform](#).*

### R-C THERMAL MODEL FOR TANK CONFIGURATION



<b>R-C VALUES FOR TANK CONFIGURATION</b>			
<b>Thermal Resistance (°C/W)</b>			
<b>Junction to</b>	<b>Ambient</b>	<b>Case</b>	<b>Foot</b>
RT1	34.5713	N/A	5.1466
RT2	5.3040	N/A	1.4251
RT3	18.6324	N/A	977.4672 m
RT4	23.4795	N/A	8.4279
<b>Thermal Capacitance (Joules/°C)</b>			
<b>Junction to</b>	<b>Ambient</b>	<b>Case</b>	<b>Foot</b>
CT1	1.4116	N/A	24.7525 m
CT2	20.5647 m	N/A	13.8477 m
CT3	72.9165 m	N/A	5.1294
CT4	13.3524	N/A	162.4819 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	7.3741	N/A	1.9861
RF2	19.1716	N/A	5.4633
RF3	35.8683	N/A	5.1414
RF4	17.4178	N/A	3.3535
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	14.4090 m	N/A	7.3468 m
CF2	58.2712 m	N/A	9.6898 m
CF3	1.2685	N/A	128.6142 m
CF4	8.8615	N/A	188.7455 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

