

## R-C Thermal Model Parameters

### DESCRIPTION

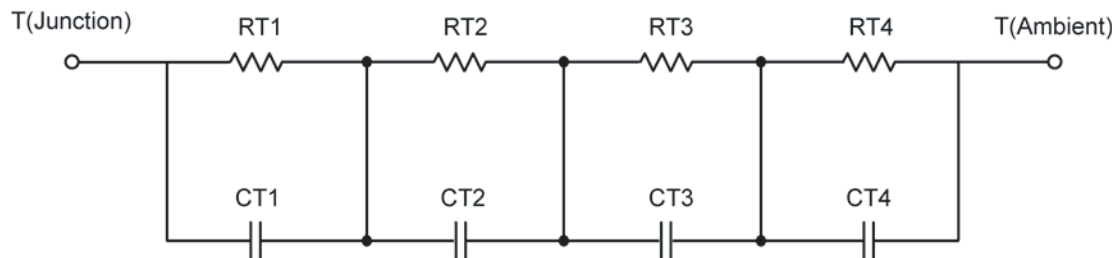
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse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

R-C values for the electrical circuit in the Foster/Tank configuration are included. The corresponding values for the Cauer/Filter configuration are available upon request.

*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](#).*

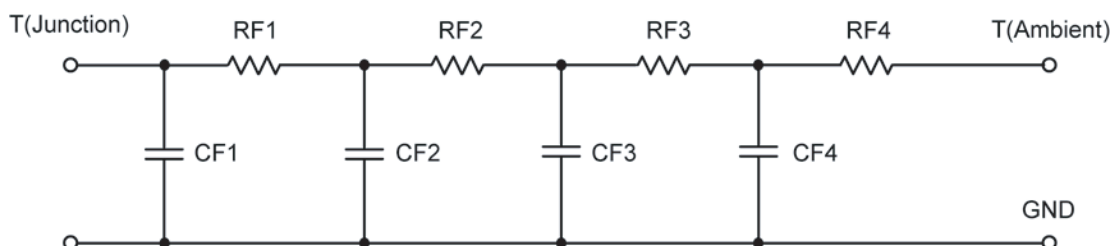
### R-C THERMAL MODEL FOR TANK CONFIGURATION



#### R-C VALUES FOR TANK CONFIGURATION

Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	6.3837	N/A	814.1216 m
RT2	23.5969	N/A	5.1502
RT3	11.7636	N/A	8.7315
RT4	37.8280	N/A	6.0646
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	7.1133 m	N/A	1.1542 m
CT2	42.1320 m	N/A	55.0336 m
CT3	451.2182 m	N/A	186.5985 m
CT4	2.0857	N/A	12.4567 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**

<b>R-C VALUES FOR FILTER CONFIGURATION</b>			
<b>Thermal Resistance (°C/W)</b>			
<b>Junction to</b>	<b>Ambient</b>	<b>Case</b>	<b>Foot</b>
RF1	1.4812	N/A	1.3800
RF2	18.5625	N/A	9.8802
RF3	23.3405	N/A	5.9810
RF4	36.1156	N/A	3.6960
<b>Thermal Capacitance (Joules/°C)</b>			
<b>Junction to</b>	<b>Ambient</b>	<b>Case</b>	<b>Foot</b>
CF1	1.0519 m	N/A	1.8193 m
CF2	13.7218 m	N/A	8.7221 m
CF3	87.3638 m	N/A	90.1949 m
CF4	2.0071	N/A	347.1210 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

