

## R-C Thermal Model Parameters

### DESCRIPTION

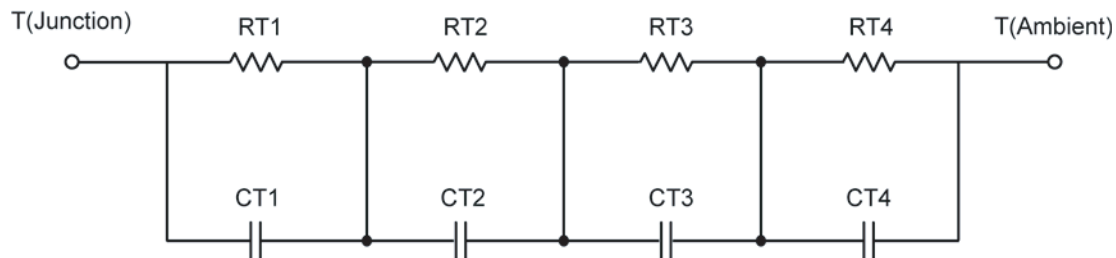
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse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

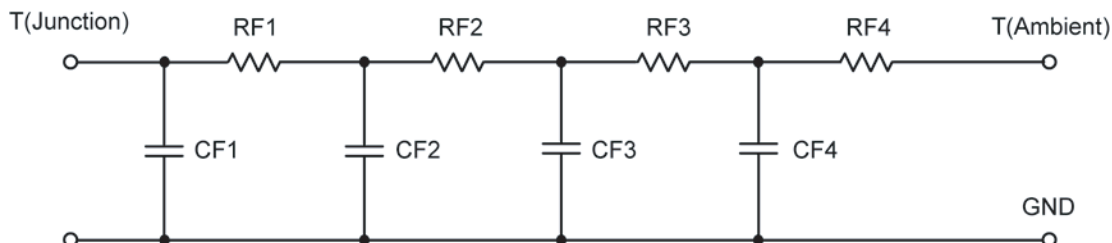
*For a detailed explanation of implementing these values in P-SPICE, refer to [Application Note AN609 Thermal Simulations Of Power MOSFETs on P-SPICE Platform](#).*

### R-C THERMAL MODEL FOR TANK CONFIGURATION



<b>R-C VALUES FOR TANK CONFIGURATION</b>			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	18.7386	N/A	6.1944
RT2	27.4633	N/A	2.0336
RT3	6.2084	N/A	4.5914
RT4	27.4377	N/A	6.1403
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	43.3248 m	N/A	40.9209 m
CT2	426.6455 m	N/A	9.8424 m
CT3	11.0102 m	N/A	20.7574 m
CT4	2.7486	N/A	334.9162 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	8.3341	N/A	2.5975
RF2	20.1735	N/A	8.3730
RF3	31.0552	N/A	5.0771
RF4	20.2632	N/A	2.9687
<b>Thermal Capacitance (Joules/°C)</b>			
<b>Junction to</b>	<b>Ambient</b>	<b>Case</b>	<b>Foot</b>
CF1	7.8868 m	N/A	4.2613 m
CF2	29.2742 m	N/A	7.1104 m
CF3	343.1673 m	N/A	82.4013 m
CF4	3.1231	N/A	835.8859 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

