

## R-C Thermal Model Parameters

### DESCRIPTION

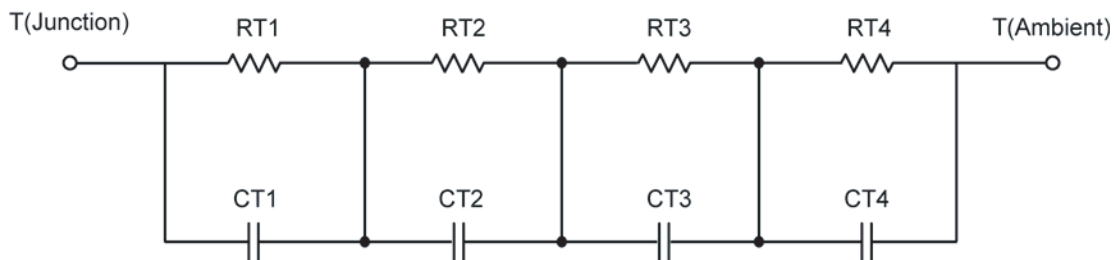
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse 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-SPIICE, refer to [Application Note AN609 Thermal Simulations Of Power MOSFETs on P-SPIICE Platform](#).

### R-C THERMAL MODEL FOR TANK CONFIGURATION

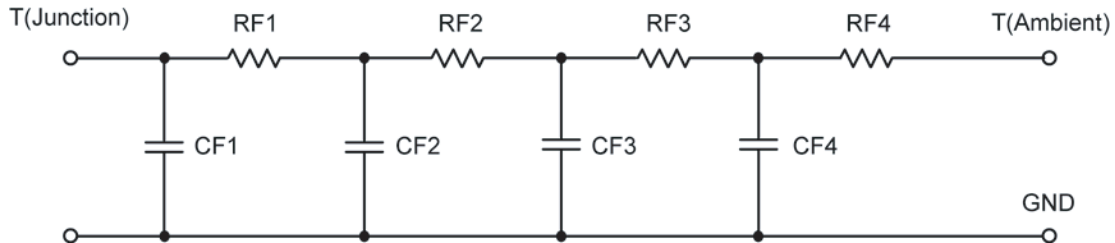


R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	370.0916 m	31.8708 m	N/A
RT2	2.7120	185.3741 m	N/A
RT3	430.7535 m	86.9344 m	N/A
RT4	36.3471	294.4038 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	54.5265 u	6.5832 m	N/A
CT2	1.0096	4.7973 m	N/A
CT3	421.8389 m	613.8519 m	N/A
CT4	2.5615	51.5160 m	N/A

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	335.4613 m	125.7330 m	N/A
RF2	1.5258	131.9021 m	N/A
RF3	11.8261	233.0714 m	N/A
RF4	26.2515	103.5980 m	N/A
<b>Thermal Capacitance (Joules/°C)</b>			
<b>Junction to</b>	<b>Ambient</b>	<b>Case</b>	<b>Foot</b>
CF1	3.2507 m	3.2216 m	N/A
CF2	176.0366 m	370.5064 u	N/A
CF3	1.3270	55.6200 m	N/A
CF4	1.8004	5.6933 m	N/A

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

