

## R-C Thermal Model Parameters

### DESCRIPTION

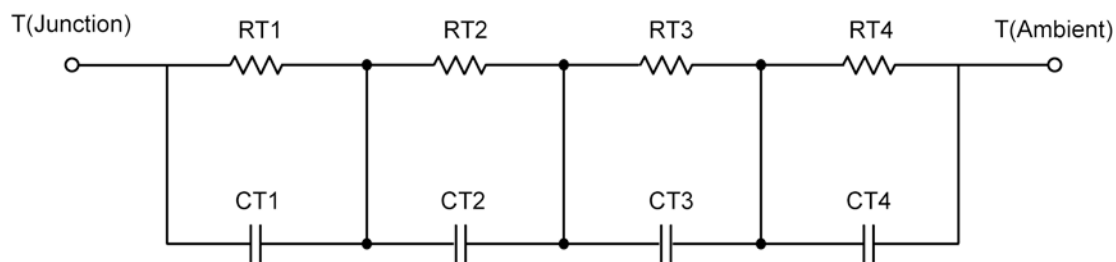
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse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

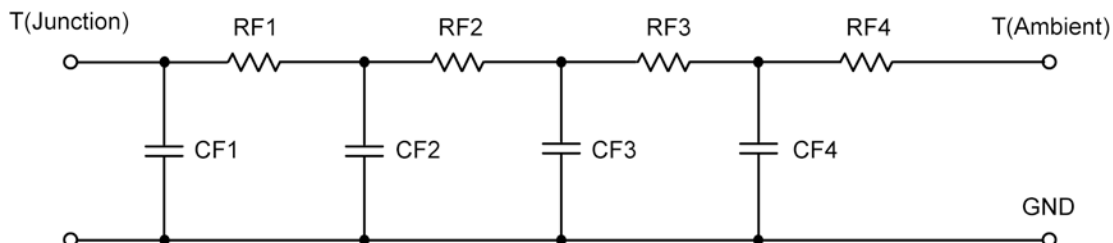


<b>R-C VALUES FOR TANK CONFIGURATION</b>			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	14.6048	1.0281	N/A
RT2	2.2767	924.9000 m	N/A
RT3	9.0626	1.6727	N/A
RT4	26.0559	1.5743	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	656.9410 m	501.3511 u	N/A
CT2	827.9601 u	3.9854 m	N/A
CT3	86.8797 m	16.8211 m	N/A
CT4	4.0344	111.5477 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



R-C VALUES FOR FILTER CONFIGURATION			
Thermal Resistance ( $^{\circ}\text{C}/\text{W}$ )			
Junction to	Ambient	Case	Foot
RF1	2.6906	1.3617	N/A
RF2	11.0901	1.5225	N/A
RF3	16.1154	1.4076	N/A
RF4	22.1039	908.2000 m	N/A
Thermal Capacitance (Joules/ $^{\circ}\text{C}$ )			
Junction to	Ambient	Case	Foot
CF1	1.2481 m	439.2840 u	N/A
CF2	78.1782 m	4.0710 m	N/A
CF3	488.3239 m	23.5434 m	N/A
CF4	4.0311	153.8906 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

