

## R-C Thermal Model Parameters

### DESCRIPTION

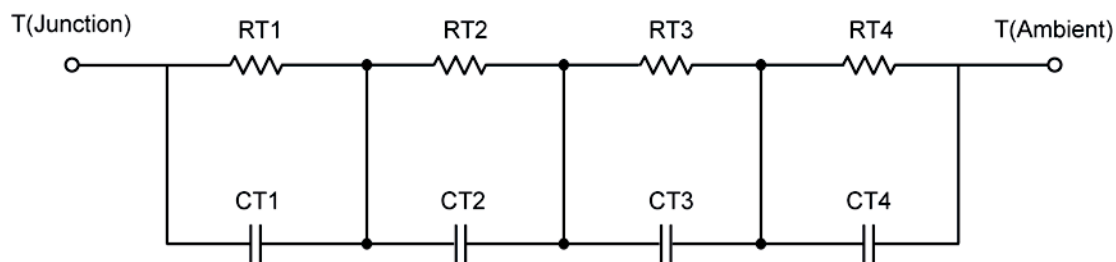
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse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



<b>R-C VALUES FOR TANK CONFIGURATION</b>			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	49.1065	714.0639 m	N/A
RT2	17.0470	762.7202 m	N/A
RT3	8.7341	711.3159 m	N/A
RT4	6.1124	1.6119	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.5218	558.9606 u	N/A
CT2	27.5314 m	6.1452 m	N/A
CT3	748.7952 m	28.6777 m	N/A
CT4	4.2555 m	9.1652 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	8.8174	1.2789	N/A
RF2	17.4872	1.0615	N/A
RF3	21.8233	921.3068 m	N/A
RF4	32.8721	538.2932 m	N/A
Thermal Capacitance (Joules/ $^{\circ}\text{C}$ )			
Junction to	Ambient	Case	Foot
CF1	3.9175 m	592.1328 u	N/A
CF2	28.3429 m	4.6001 m	N/A
CF3	690.8084 m	402.9641 u	N/A
CF4	1.4062	8.3522 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

