

R-C Thermal Model Parameters

DESCRIPTION

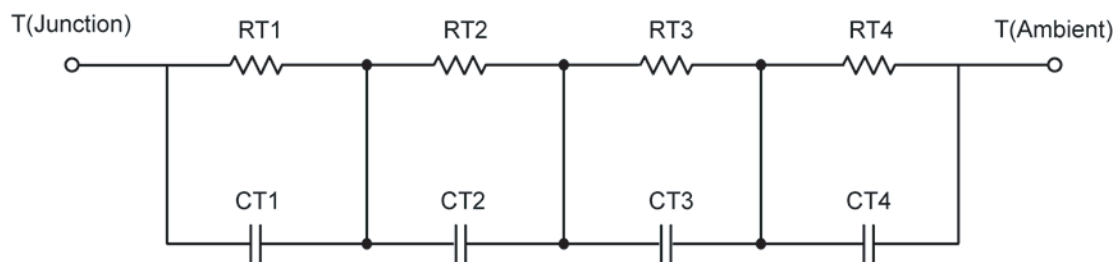
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse 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	74.6178	N/A	N/A
RT2	102.2554	N/A	N/A
RT3	62.4029	N/A	N/A
RT4	260.7239	N/A	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	306.1301 u	N/A	N/A
CT2	29.4062 m	N/A	N/A
CT3	1.0007	N/A	N/A
CT4	2.8011 m	N/A	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	78.3496	N/A	N/A
RF2	136.5724	N/A	N/A
RF3	215.4053	N/A	N/A
RF4	69.6727	N/A	N/A
Thermal Capacitance (Joules/ $^{\circ}\text{C}$)			
Junction to	Ambient	Case	Foot
CF1	247.6060 μ	N/A	N/A
CF2	1.5113 m	N/A	N/A
CF3	3.0989 m	N/A	N/A
CF4	682.9946 m	N/A	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

