

R-C Thermal Model Parameters

DESCRIPTION

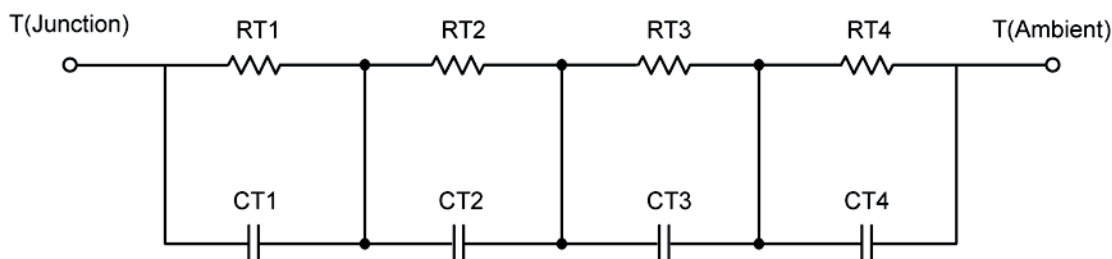
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse 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	6.6678	568.5422 m	N/A
RT2	35.0895	257.4745 m	N/A
RT3	15.9838	76.2833 m	N/A
RT4	23.2589	1.4977	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	7.2586 m	1.0022 m	N/A
CT2	2.5015	16.9938 m	N/A
CT3	50.2866 m	226.0908 m	N/A
CT4	2.3938	10.8229 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	8.6271	687.6158 m	N/A
RF2	14.7288	670.6725 m	N/A
RF3	22.0958	718.4132 m	N/A
RF4	35.5483	323.2985 m	N/A
Thermal Capacitance (Joules/ $^{\circ}\text{C}$)			
Junction to	Ambient	Case	Foot
CF1	6.2941 m	801.7716 u	N/A
CF2	44.3499 m	6.0245 m	N/A
CF3	961.8988 m	458.2224 u	N/A
CF4	689.3641 m	30.8864 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

