

R-C Thermal Model Parameters

DESCRIPTION

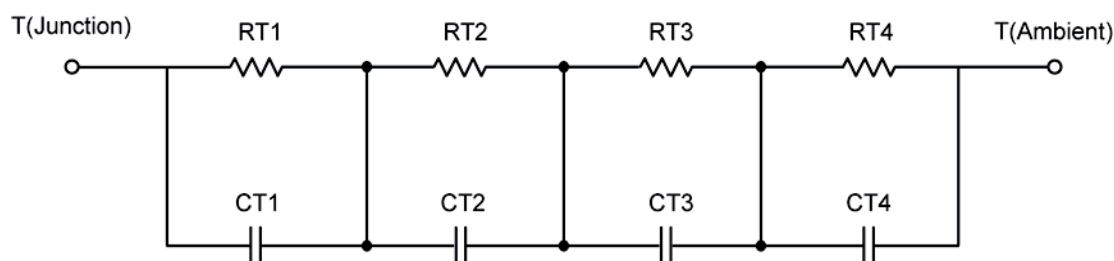
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse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

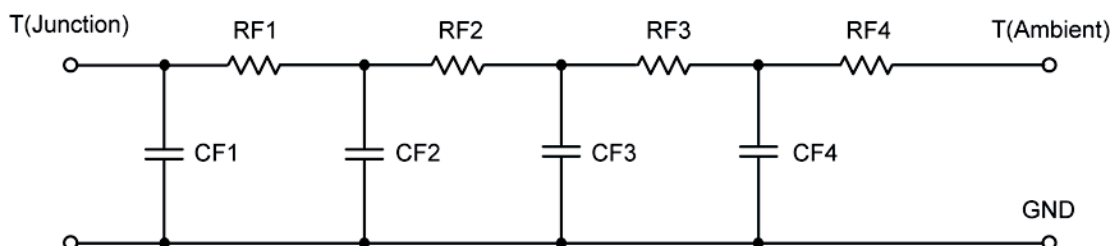
For a detailed explanation of implementing these values in P-SPIICE, refer to [Application Note AN609 Thermal Simulations Of Power MOSFETs on P-SPIICE Platform](#).

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case Drain Top	Foot
RT1	5.5169	2.2335	N/A
RT2	41.1679	1.5319	N/A
RT3	27.0713	2.7823	N/A
RT4	11.2439	2.9523	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case Drain Top	Foot
CT1	127.2397 u	617.7577 u	N/A
CT2	2.3084	65.0530 u	N/A
CT3	1.2574 m	2.3875 m	N/A
CT4	121.9948 m	611.1140 u	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 (°C/W)			
Junction to	Ambient	Case Drain Top	Foot
RF1	11.0165	3.1611	N/A
RF2	24.3371	2.4414	N/A
RF3	11.1651	2.1043	N/A
RF4	38.4813	1.7932	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case Drain Top	Foot
CF1	223.3966 u	71.7225 u	N/A
CF2	1.7041 m	257.3113 u	N/A
CF3	232.6334 m	369.3748 u	N/A
CF4	2.2784	332.9593 u	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

