



R-C Thermal Model Parameters

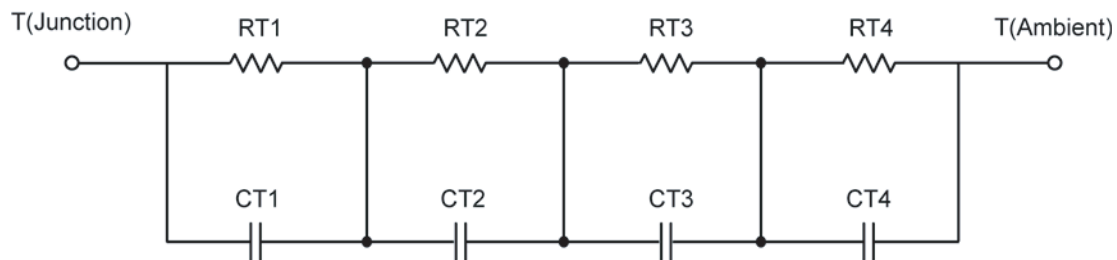
DESCRIPTION

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.

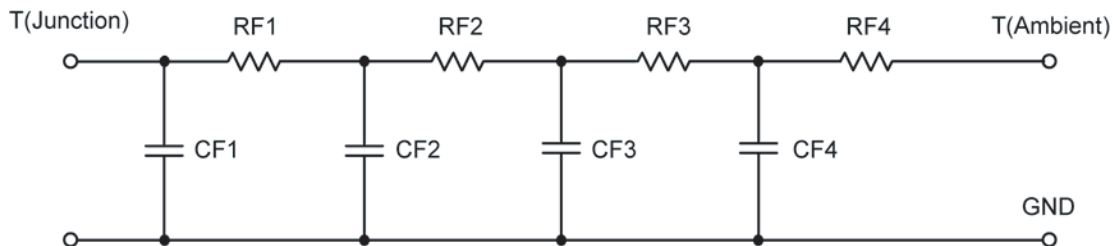
Note:
For a detailed explanation of implementing these values in P-SPIICE, refer to [Application Note AN609 Thermal Simulations Of Power MOSFETs on P-SPIICE Platform](#).

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	4.9368	N/A	356.4928 m
RT2	30.1113	N/A	4.9592
RT3	28.7510	N/A	8.9660
RT4	26.3833	N/A	5.6680
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	8.1415 m	N/A	4.3781 m
CT2	46.8532 m	N/A	74.2899 m
CT3	2.2308	N/A	245.4435 m
CT4	3.4489	N/A	8.1421 m

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	5.3456	N/A	5.4128
RF2	28.8277	N/A	5.0268
RF3	28.7235	N/A	5.5889
RF4	27.3734	N/A	3.9583
Thermal Capacitance (Joules/ $^{\circ}\text{C}$)			
Junction to	Ambient	Case	Foot
CF1	4.9331 m	N/A	5.4510 m
CF2	34.7263 m	N/A	20.7772 m
CF3	929.3819 m	N/A	102.6252 m
CF4	1.3859	N/A	349.0890 m

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

