



R-C Thermal Model Parameters

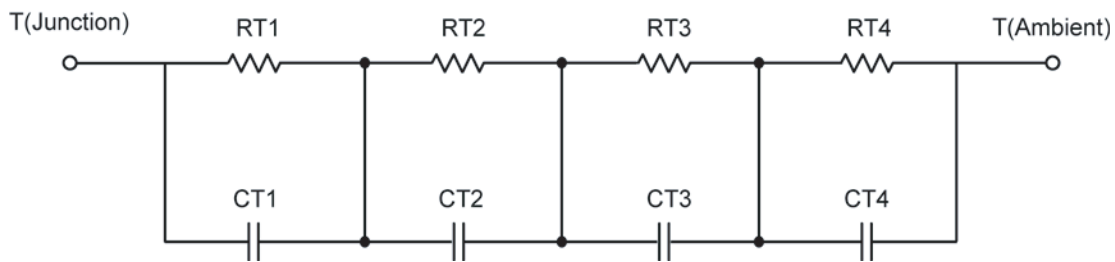
DESCRIPTION

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.

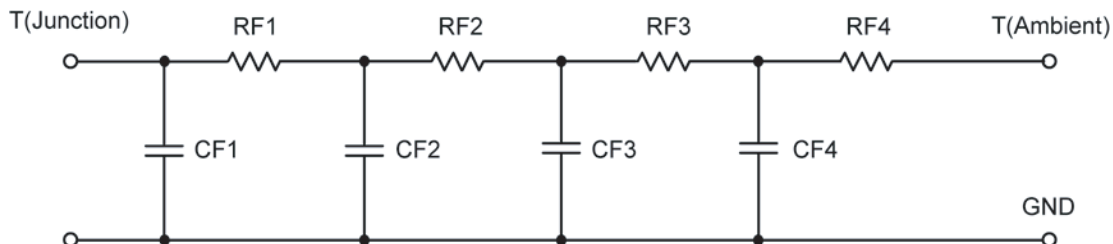
Note:
For a detailed explanation of implementing these values in P-SPIICE, refer to [Application Note AN609 Thermal Simulations Of Power MOSFETs on P-SPIICE Platform](#).

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	8.6877	N/A	2.6656
RT2	28.4684	N/A	4.1590
RT3	19.8045	N/A	14.1183
RT4	28.1071	N/A	7.0315
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	3.5586 m	N/A	562.4902 μ
CT2	42.5237 m	N/A	79.7372 m
CT3	1.6512	N/A	73.3606 m
CT4	3.1236	N/A	9.0585 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 (°C/W)			
Junction to	Ambient	Case	Foot
RF1	6.4712	N/A	3.1821
RF2	17.9572	N/A	10.2512
RF3	18.7986	N/A	6.9448
RF4	41.5016	N/A	7.6718
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	1.9640 m	N/A	626.7851 μ
CF2	19.5042 m	N/A	7.0656 m
CF3	85.7496 m	N/A	41.7415 m
CF4	1.4233	N/A	36.9009 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

