

R-C Thermal Model Parameters

DESCRIPTION

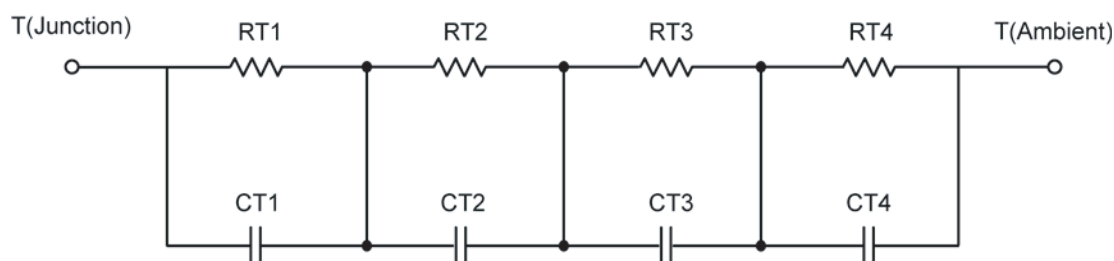
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse 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-SPICE, refer to [Application Note AN609 Thermal Simulations Of Power MOSFETs on P-SPICE Platform](#).

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	23.7917	N/A	782.1677 m
RT2	7.6165	N/A	4.1108
RT3	32.4088	N/A	19.4573
RT4	45.9134	N/A	15.5279
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	9.6457 m	N/A	2.6819 m
CT2	600.5571 u	N/A	486.7394 u
CT3	62.4646 m	N/A	62.0502 m
CT4	1.3812	N/A	6.0012 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	7.3857	N/A	4.3934
RF2	28.4889	N/A	16.5333
RF3	30.8462	N/A	9.3558
RF4	42.9641	N/A	9.9210
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	444.5771 u	N/A	199.5736 u
CF2	6.7474 m	N/A	4.4137 m
CF3	52.9790 m	N/A	30.3868 m
CF4	1.4180	N/A	94.2723 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

