

R-C Thermal Model Parameters

DESCRIPTION

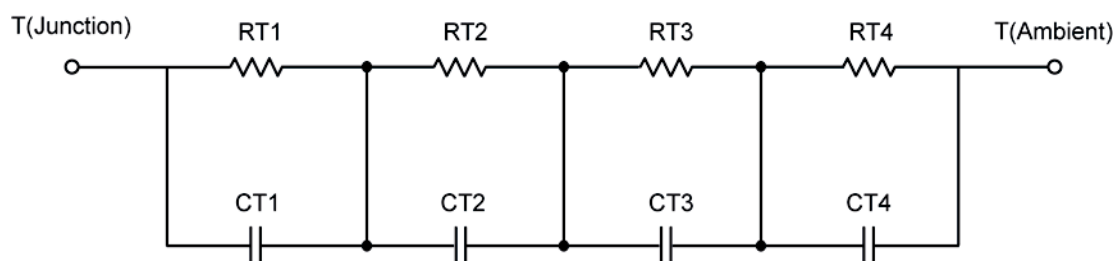
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in ["A Simple Method of Generating Thermal Models for a Power MOSFET"](#)[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse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

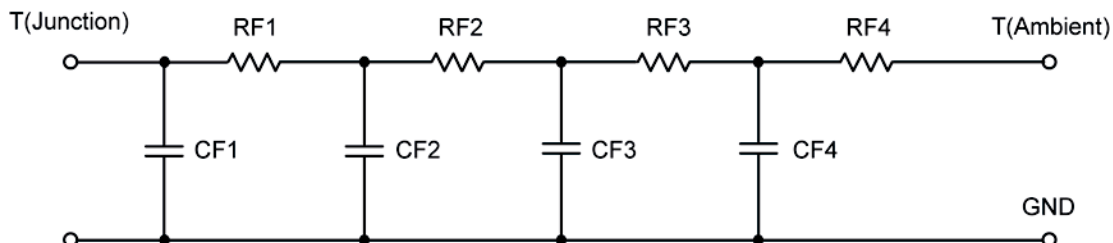
For a detailed explanation of implementing these values in P-SPICE, refer to [Application Note AN609 Thermal Simulations Of Power MOSFETs on P-SPICE Platform](#).

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	26.9628	1.1278 m	N/A
RT2	13.8449	51.4366 m	N/A
RT3	14.7742	4.9136	N/A
RT4	48.9841	4.5126	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	4.3960 m	5.4337 u	N/A
CT2	254.1818 u	1.1487 m	N/A
CT3	289.7400 m	65.6663 u	N/A
CT4	1.6281	333.4860 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	Foot
RF1	14.2399	2.7390	N/A
RF2	26.7266	4.8531	N/A
RF3	18.7649	148.0174 m	N/A
RF4	45.2590	1.7445	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	218.1370 u	32.0113 u	N/A
CF2	3.6830 m	77.9062 u	N/A
CF3	208.5424 m	542.5600 u	N/A
CF4	1.5514	15.9892 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

