R-C Thermal Model Parameters

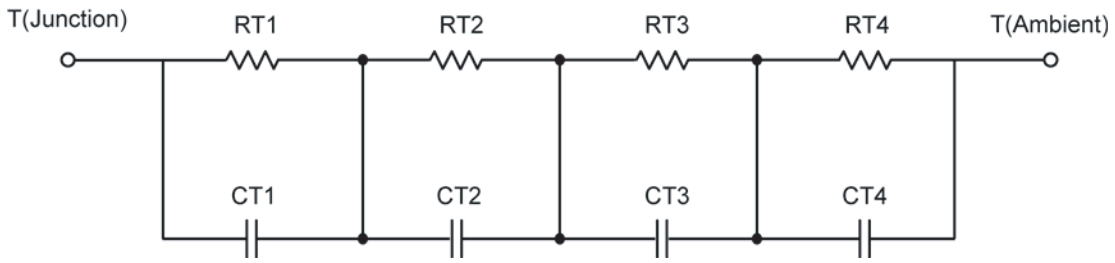
DESCRIPTION

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.

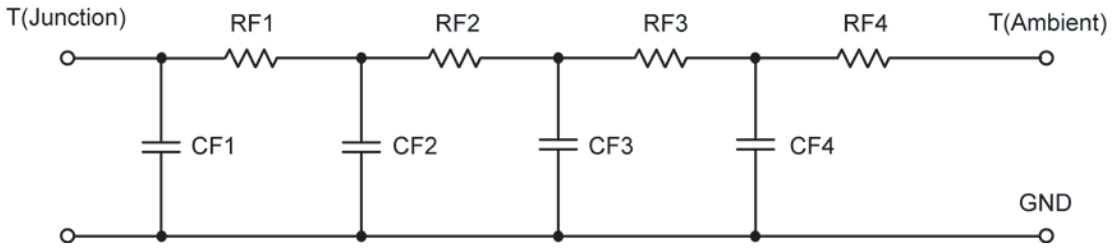
R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	370.0916 m	38.4676 m	N/A
RT2	2.7120	194.8799 m	N/A
RT3	430.7535 m	112.3408 m	N/A
RT4	36.3471	302.5322 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	54.5265 u	65.6548 m	N/A
CT2	1.0096	3.0423 m	N/A
CT3	421.8389 m	429.7829 m	N/A
CT4	2.5615	46.5516 m	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



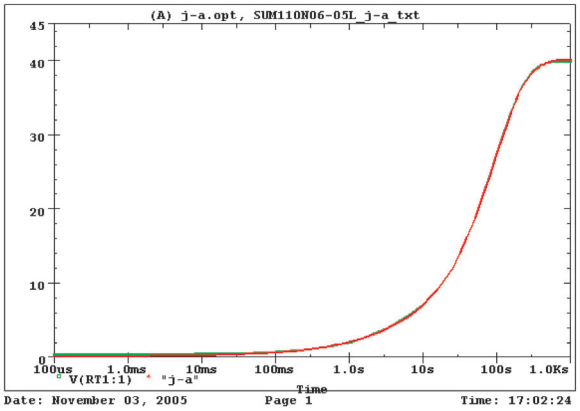
R-C VALUES FOR FILTER CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RF1	335.4613 m	125.9301 m	N/A
RF2	1.5258	140.4942 m	N/A
RF3	11.8261	229.1052 m	N/A
RF4	26.2515	150.6668 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	3.2507 m	2.8352 m	N/A
CF2	176.0366 m	85.9819 u	N/A
CF3	1.3270	47.9683 m	N/A
CF4	1.8004	3.4006 m	N/A

Note: NA indicates not applicable

Reference:

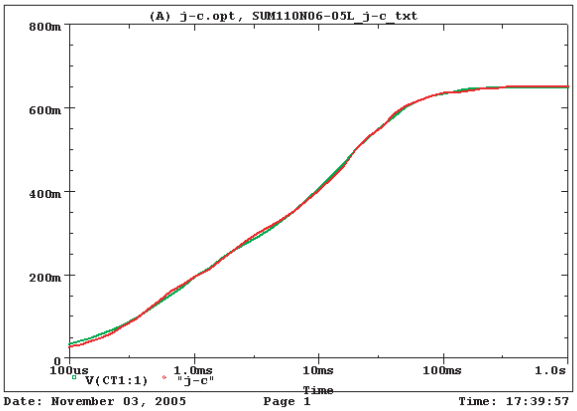
[1] "A Simple Method of Generating Thermal Models for a Power MOSFET" by Wharton McDaniel and Kandarp Pandya, IEEE / SEMITHERM 2002

SUM110N06-05L Tank j-a Temperature: 27.0



Date: November 03, 2005 Page 1 Time: 17:02:24

SUM110N06-05L Tank j-c Temperature: 27.0



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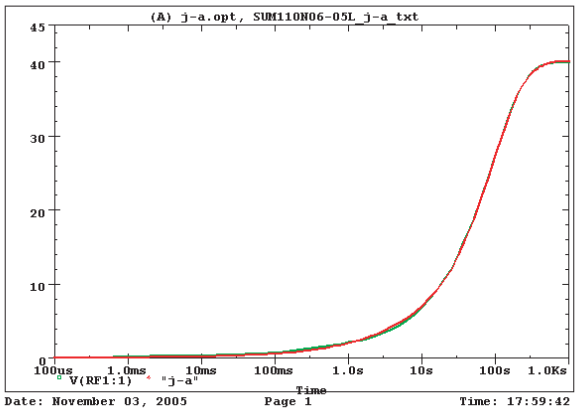
SUM110N06-05L Filter j-a Temperature: 27.0



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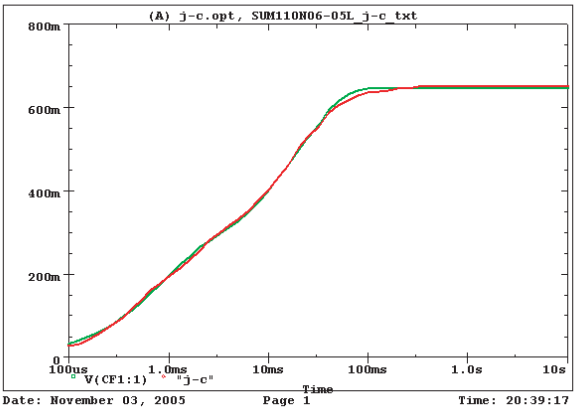

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