

R-C Thermal Model Parameters

DESCRIPTION

The parametric values in the R-C thermal model have been derived using curve-fitting techniques. R-C values for the electrical circuit in the Foster/Tank and Cauer/Filter configurations are included. When implemented in P-Spice, these values have matching characteristic curves to the single-pulse transient thermal impedance curves for the MOSFET.

These RC values can be used in the P-SPICE simulation to evaluate the thermal behavior of the MOSFET junction temperature under a defined power profile. These techniques are described in Application Note AN609, "Thermal Simulation of Power MOSFETs on the P-Spice Platform."

R-C THERMAL MODEL FOR TANK CONFIGURATION

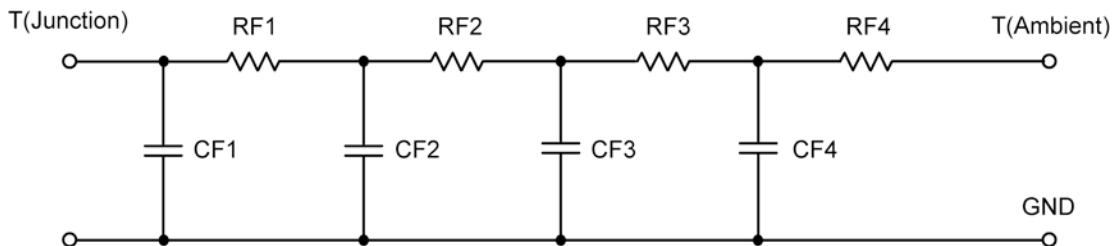


R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	1.1302	780.2705 m	N/A
RT2	5.8182	736.9927 m	N/A
RT3	28.5562	425.0679 m	N/A
RT4	4.4954	657.6689 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	3.0209 m	967.4000 u	N/A
CT2	513.7966 m	120.9926 m	N/A
CT3	1.3962	17.0010 m	N/A
CT4	48.0745 m	15.0630 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



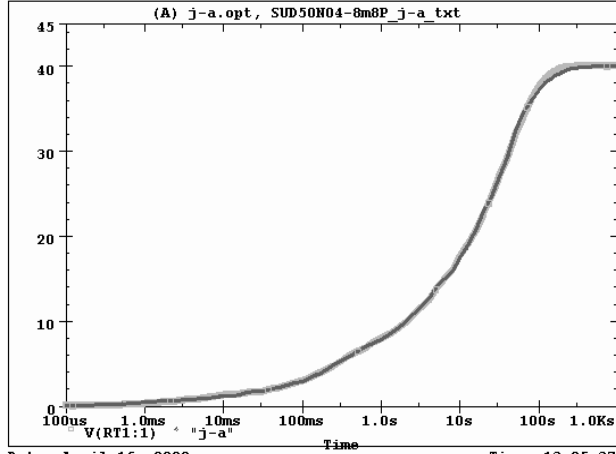
R-C VALUES FOR FILTER CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RF1	1.2471	1.0093	N/A
RF2	5.3069	448.2263 m	N/A
RF3	11.0358	537.5366 m	N/A
RF4	22.4102	604.9371 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	2.3800 m	926.4368 u	N/A
CF2	38.8811 m	7.6962 m	N/A
CF3	379.3704 m	93.6221 u	N/A
CF4	1.3392	131.5383 m	N/A

Note

NA indicates not applicable



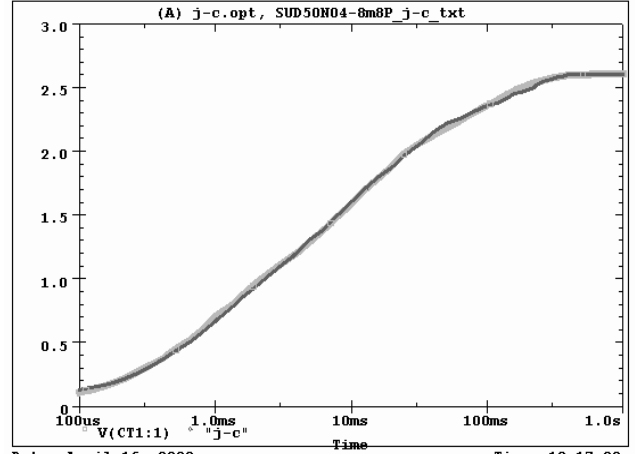
SUD50N04-8m8P Tank j-a Temperature:27.0



Date: April 16, 2008

Time: 13:25:37

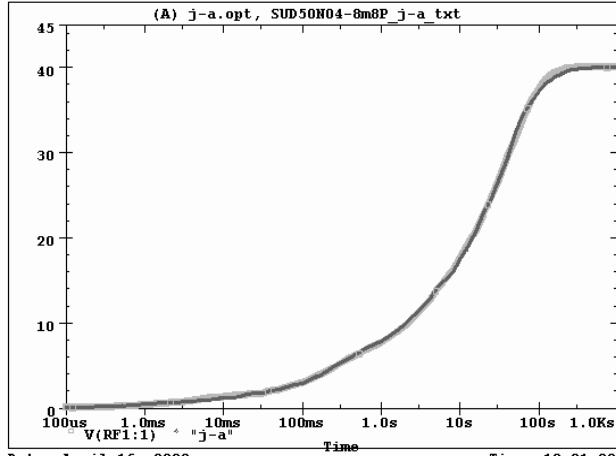
SUD50N04-8m8P Tank j-c Temperature:27.0



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Time: 18:17:22

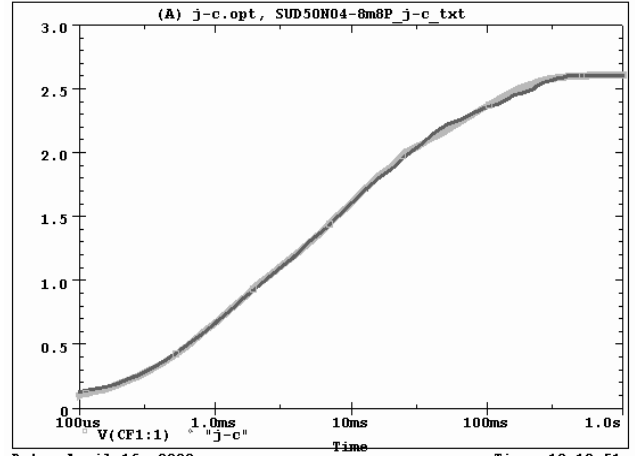
SUD50N04-8m8P Filter j-a Temperature:27.0



Date: April 16, 2008

Time: 19:01:20

SUD50N04-8m8P Filter j-c Temperature:27.0



Date: April 16, 2008

Time: 19:10:51