

## R-C Thermal Model Parameters

### DESCRIPTION

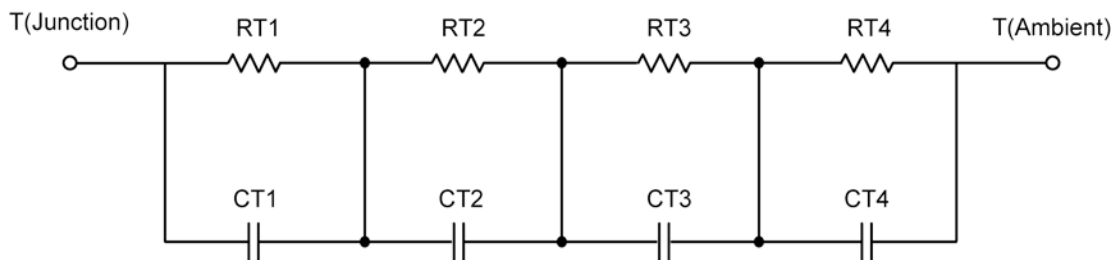
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse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

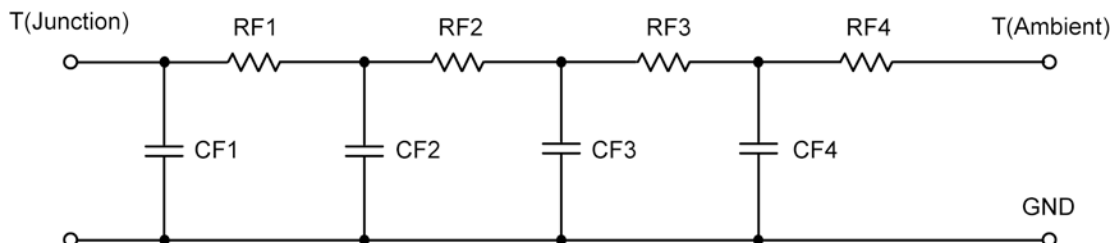


R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	9.1586	1.1139	N/A
RT2	11.4897	908.8449 m	N/A
RT3	2.0039	332.9033 m	N/A
RT4	32.3478	894.3518 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	83.2564 m	8.3194 m	N/A
CT2	2.2349	109.6755 m	N/A
CT3	4.3511 m	32.1611 m	N/A
CT4	2.6554	772.6862 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	2.6736	1.3599	N/A
RF2	9.4599	1.4709	N/A
RF3	15.5753	201.0000 m	N/A
RF4	27.2912	218.2000 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	5.6003 m	814.8814 u	N/A
CF2	81.5555 m	11.3621 m	N/A
CF3	885.7443 m	437.6051 m	N/A
CF4	1.4856	551.7693 u	N/A

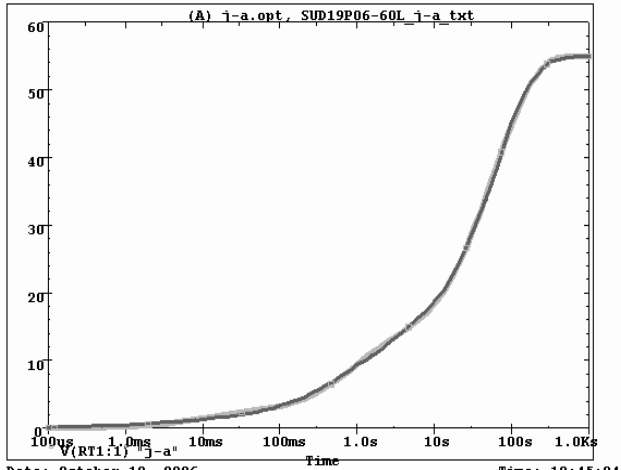
Note: NA indicates not applicable

Reference:

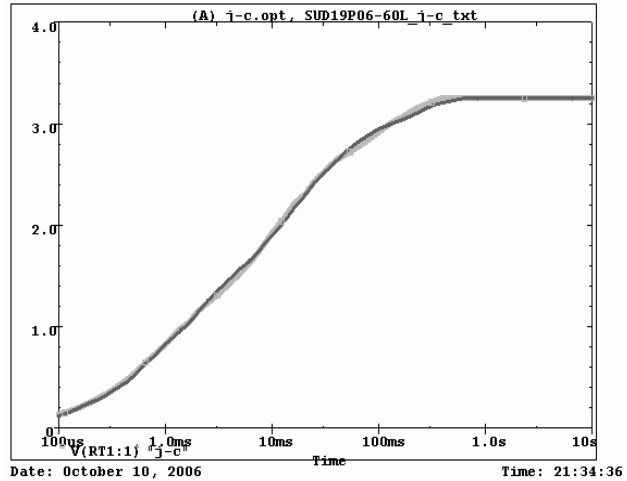
[1] "A Simple Method of Generating Thermal Models for a Power MOSFET" by Wharton McDaniel and Kandarp Pandya. IEEE / SEMITHERM 2002



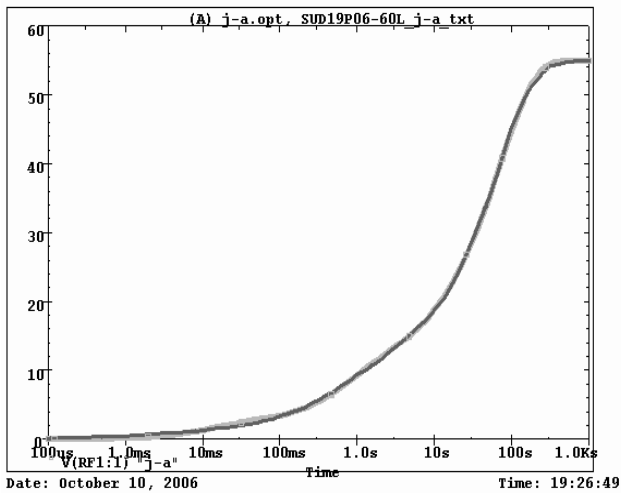
SUD19P06-60L Tank j-a Temperature: 27.0



SUD19P06-60L Tank j-c Temperature: 27.0



SUD19P06-60L Filter j-a Temperature: 27.0



SUD19P06-60L Filter j-c Temperature: 27.0

