

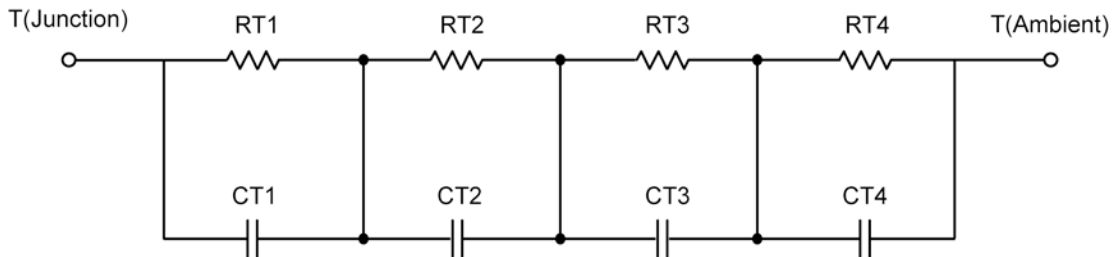
## R-C Thermal Model Parameters

### 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.

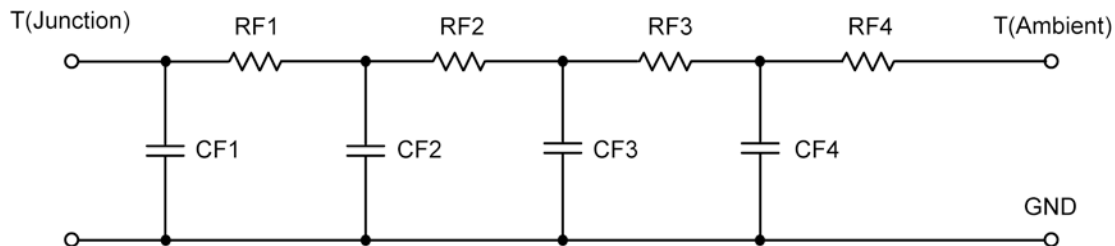
These RC values can be used in the P-SPICE simulation to evaluate the thermal behavior of the MOSFET junction temperature under a defined power profile. These techniques are described in Application Note AN609, "Thermal Simulation of Power MOSFETs on the P-Spice Platform."

### R-C THERMAL MODEL FOR TANK CONFIGURATION



<b>R-C VALUES FOR TANK CONFIGURATION</b>				
<b>Thermal Resistance (°C/W)</b>				
<b>Junction to</b>	<b>Ambient Nch</b>	<b>Ambient Pch</b>	<b>Foot Nch</b>	<b>Foot Pch</b>
RT1	31.9387	34.5106	10.5163	10.6720
RT2	24.8096	29.7204	16.6868	16.7531
RT3	13.7827	14.1654	4.9227	4.6302
RT4	44.4690	51.6036	7.8742	7.9447
<b>Thermal Capacitance (Joules/°C)</b>				
<b>Junction to</b>	<b>Ambient Nch</b>	<b>Ambient Pch</b>	<b>Foot Nch</b>	<b>Foot Pch</b>
CT1	2.3069 m	1.5958 m	5.1475 m	3.7903 m
CT2	52.7330 m	29.5762 m	1.0306 m	775.2434 u
CT3	220.3727 u	104.3228 u	60.1946 u	39.9338 u
CT4	2.2234	1.7477	614.6721 u	392.1594 u

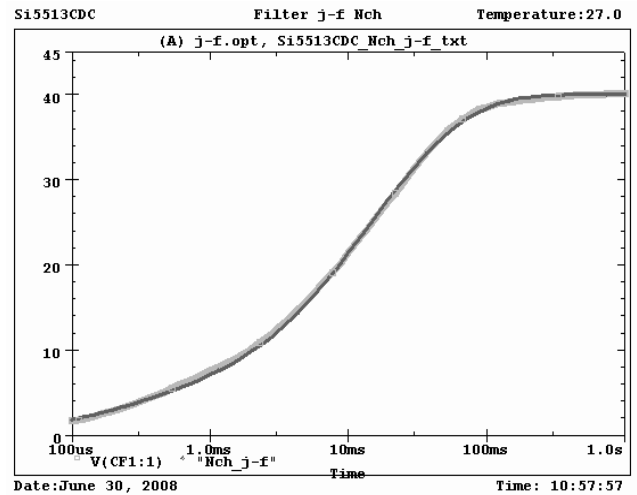
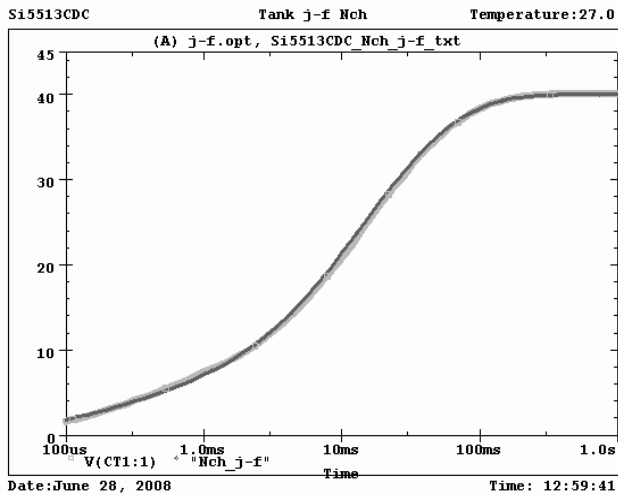
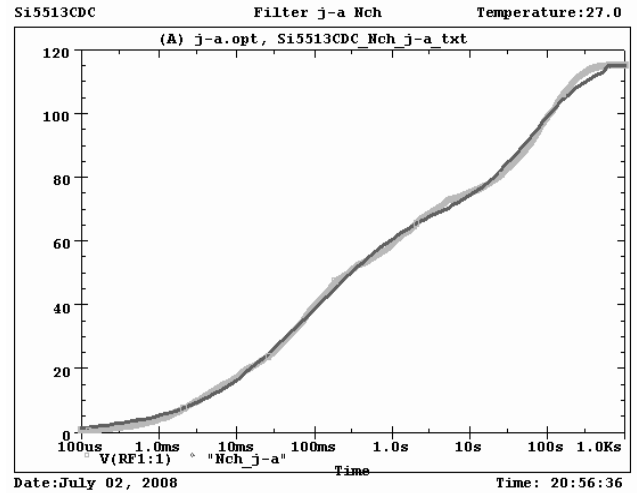
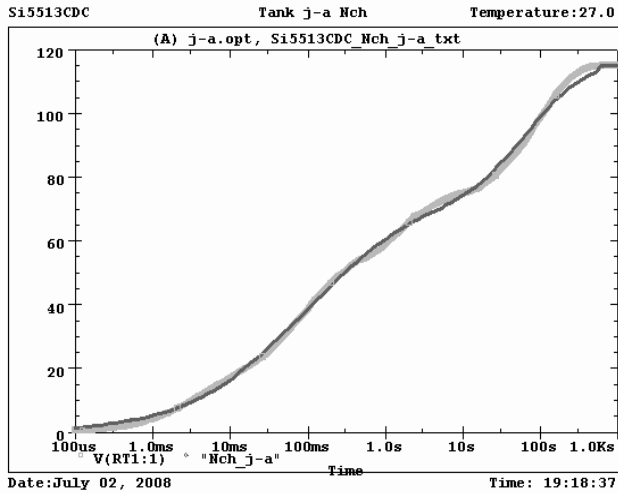
*This document is intended as a SPICE modeling guideline and does not constitute a commercial product data sheet. Designers should refer to the appropriate data sheet of the same number for guaranteed specification limits.*

**R-C THERMAL MODEL FOR FILTER CONFIGURATION****R-C VALUES FOR FILTER CONFIGURATION**

Thermal Resistance (°C/W)				
Junction to	Ambient Nch	Ambient Pch	Foot Nch	Foot Pch
RF1	16.9201	16.4997	6.9446	8.0216
RF2	32.6059	36.8540	16.2526	17.2373
RF3	22.7873	26.9578	15.4097	14.1077
RF4	42.6867	49.6885	1.3931	633.4000 m
Thermal Capacitance (Joules/°C)				
Junction to	Ambient Nch	Ambient Pch	Foot Nch	Foot Pch
CF1	207.4185 u	102.2081 u	54.6938 u	59.8676 u
CF2	2.1551 m	1.5198 m	287.3902 u	222.9306 u
CF3	64.8004 m	35.4133 m	1.1348 m	1.2801 m
CF4	2.2795	1.8320	118.9786 m	60.5322 m

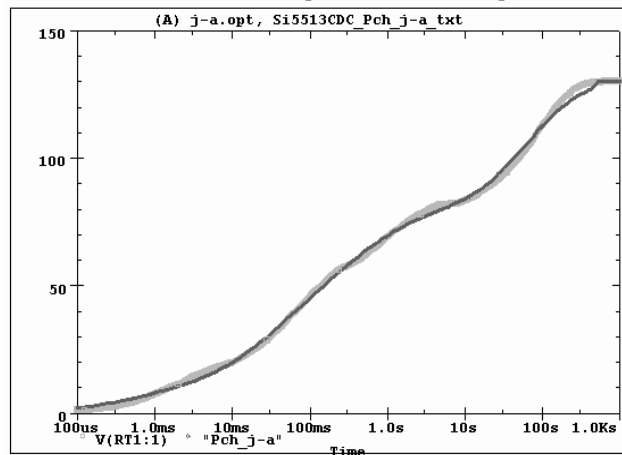
**Note**

NA indicates not applicable



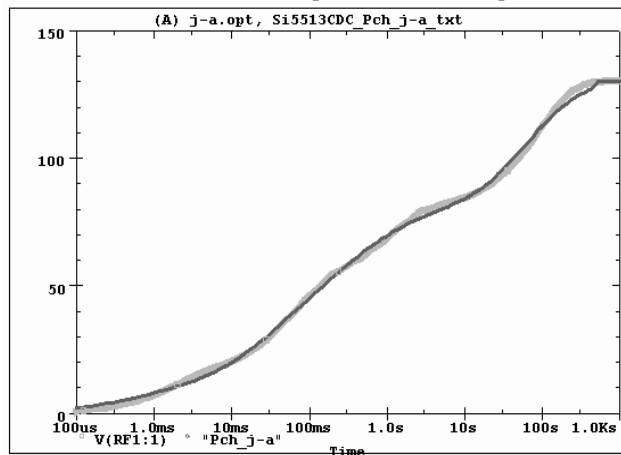


Si5513CDC Tank j-a Pch Temperature:27.0



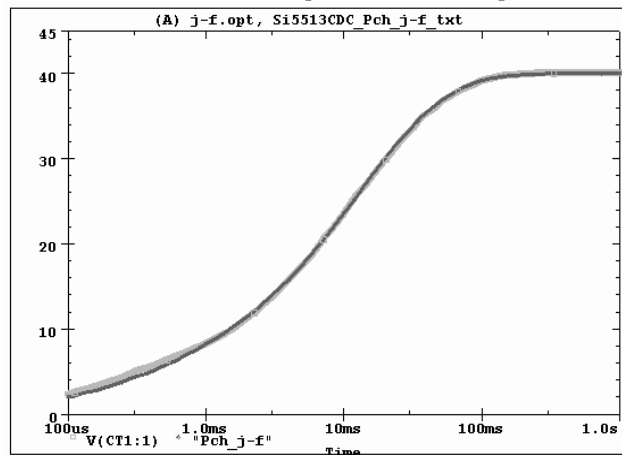
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Si5513CDC Filter j-a Pch Temperature:27.0



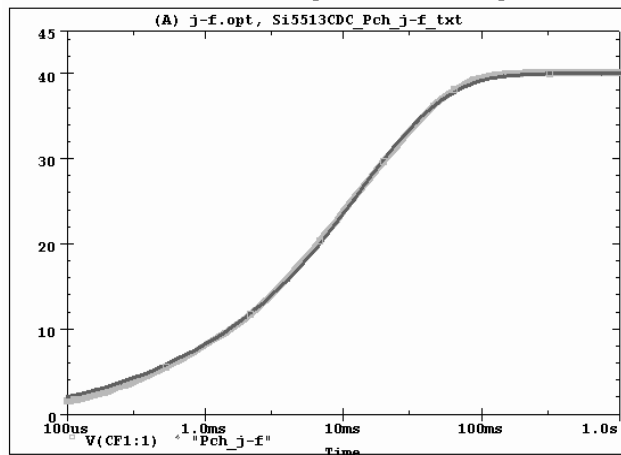
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Si5513CDC Tank j-f Pch Temperature:27.0



Date:June 28, 2008 Time: 13:04:57

Si5513CDC Filter j-f Pch Temperature:27.0



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