

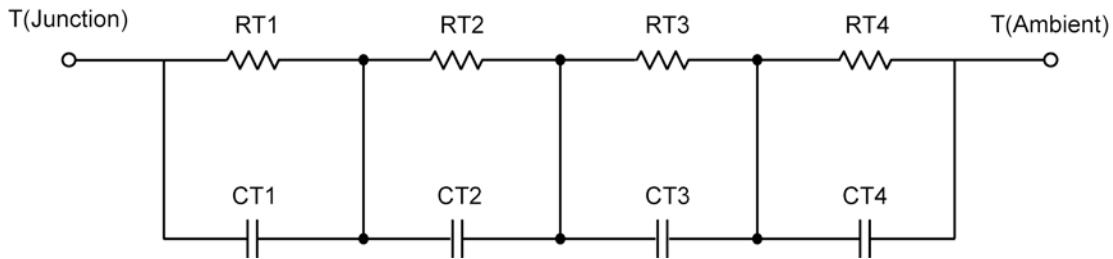
R-C Thermal Model Parameters

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.

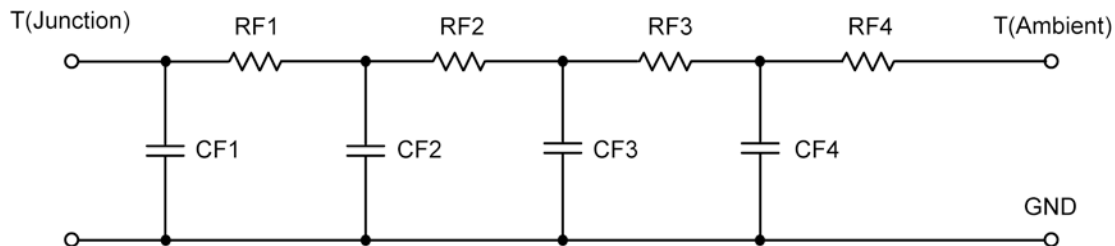
These RC values can be used in the P-SPICE simulation to evaluate the thermal behavior of the MOSFET junction temperature under a defined power profile. These techniques are described in Application Note AN609, "Thermal Simulation of Power MOSFETs on the P-Spice Platform."

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION				
Thermal Resistance (°C/W)				
Junction to	Ambient Nch	Ambient Pch	Foot Nch	Foot Pch
RT1	7.9213	40.0335	5.3852	3.5374
RT2	27.9061	36.9267	23.7134	23.4223
RT3	21.4173	10.8043	7.0812	7.2772
RT4	52.7553	42.2355	3.8202	5.7631
Thermal Capacitance (Joules/°C)				
Junction to	Ambient Nch	Ambient Pch	Foot Nch	Foot Pch
CT1	177.8990 u	1.2404 m	58.1731 m	23.4575 m
CT2	1.5266 m	19.4870 m	1.5884 m	1.3780 m
CT3	31.4438 m	110.4283 u	184.9516 u	121.3099 u
CT4	1.3752	1.5356	3.3672 m	1.4560 m

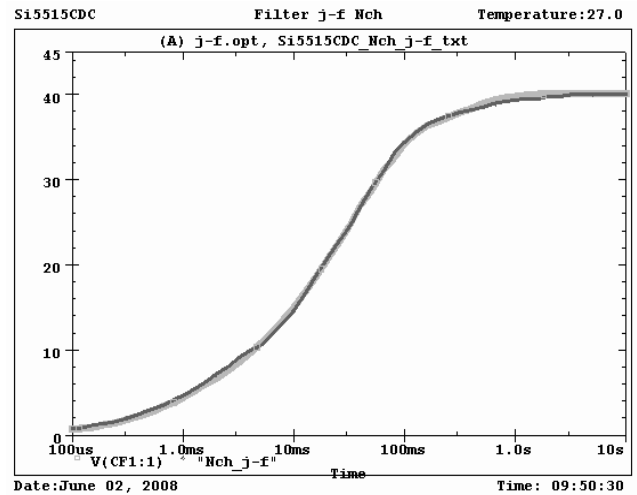
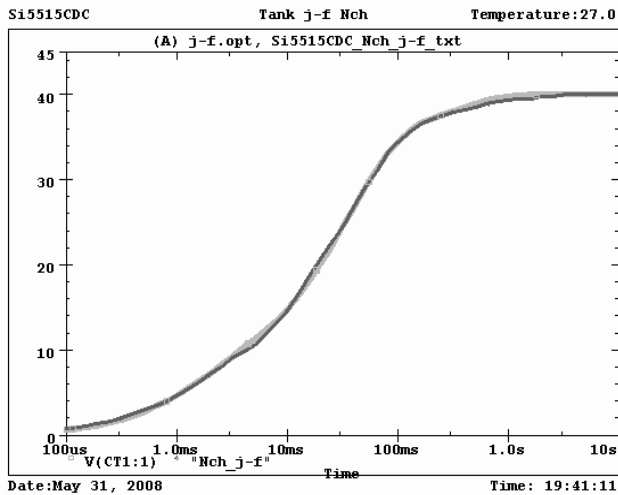
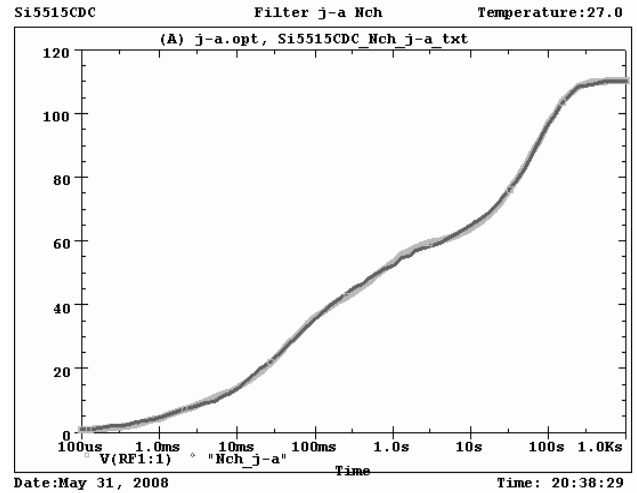
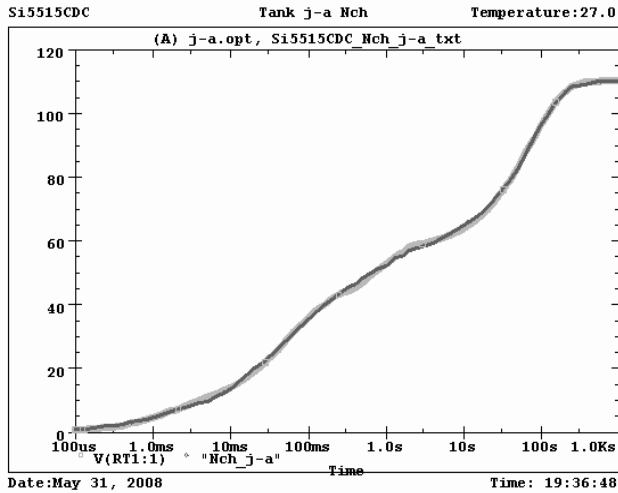
This document is intended as a SPICE modeling guideline and does not constitute a commercial product data sheet. Designers should refer to the appropriate data sheet of the same number for guaranteed specification limits.

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	9.4372	10.2597	6.6352	7.7124
RF2	28.0774	45.6704	12.9933	11.9397
RF3	20.6270	32.9683	15.9726	15.6135
RF4	51.8584	41.1016	4.3989	4.7344
Thermal Capacitance (Joules/°C)				
Junction to	Ambient Nch	Ambient Pch	Foot Nch	Foot Pch
CF1	162.9663 u	80.6872 u	147.8468 u	96.9375 u
CF2	1.2446 m	971.3076 u	487.9340 u	468.7502 u
CF3	28.3060 m	21.6379 m	1.5493 m	576.8647 u
CF4	1.3525	1.5660	64.8634 m	8.9259 m

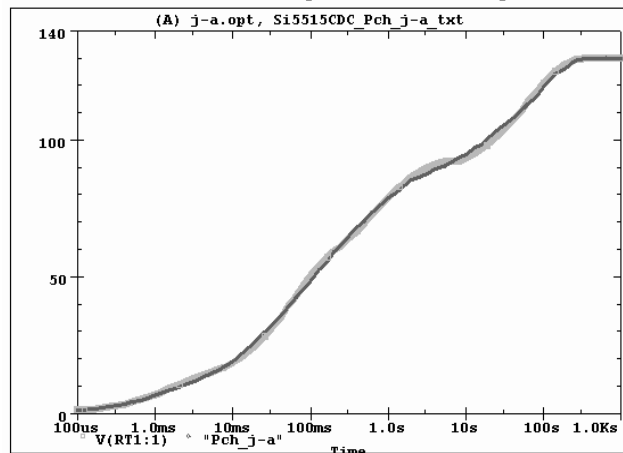
Note

NA indicates not applicable



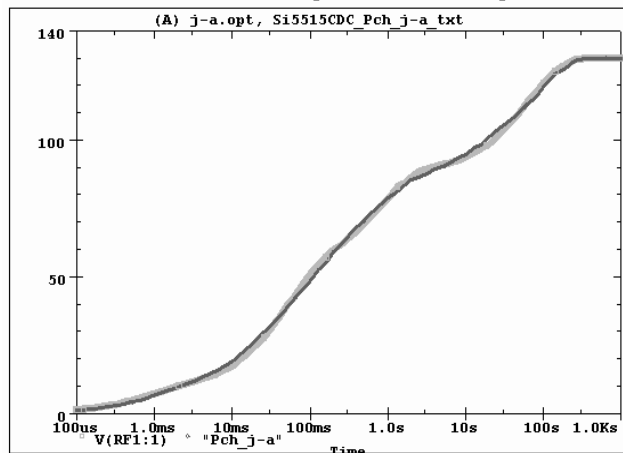


Si5515CDC Tank j-a Pch Temperature:27.0



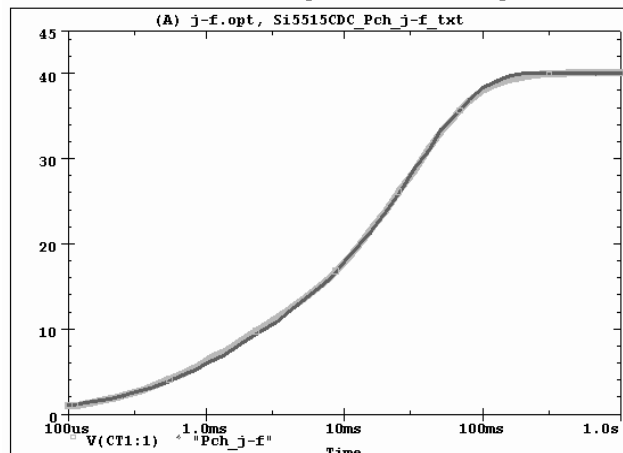
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Si5515CDC Filter j-a Pch Temperature:27.0



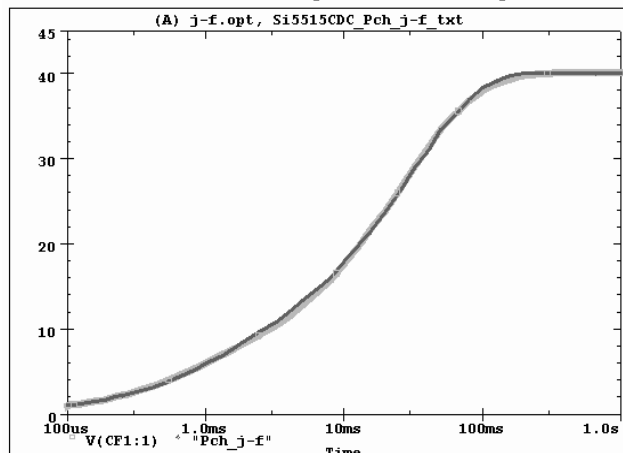
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Si5515CDC Tank j-f Pch Temperature:27.0



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Si5515CDC Filter j-f Pch Temperature:27.0



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