

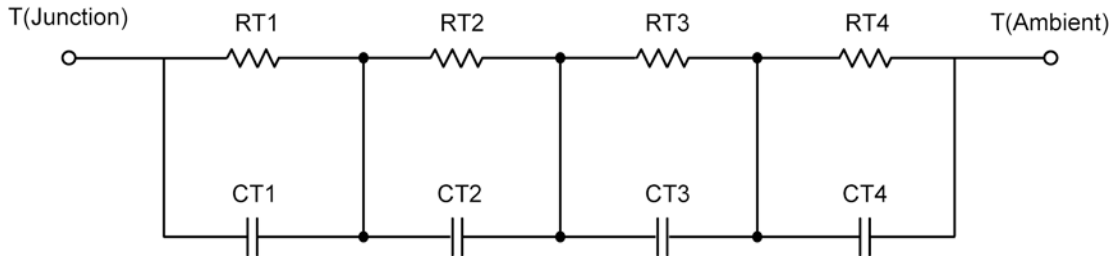
R-C Thermal Model Parameters

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.

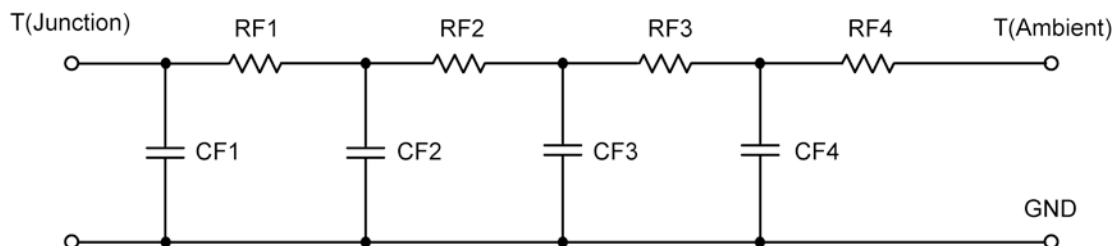
These RC values can be used in the P-SPICE simulation to evaluate the thermal behavior of the MOSFET junction temperature under a defined power profile. These techniques are described in Application Note AN609, "Thermal Simulation of Power MOSFETs on the P-Spice Platform."

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION				
Thermal Resistance (°C/W)				
Junction to	Ambient-Mosfet	Foot-Mosfet	Ambient-Schtky	Foot-Schtky
RT1	32.5316	14.9622	27.6881	22.8082
RT2	12.5177	6.3424	8.0555	5.7665
RT3	31.7168	20.6505	23.8727	1.6485
RT4	53.2339	3.0449	55.3837	9.7768
Thermal Capacitance (Joules/°C)				
Junction to	Ambient-Mosfet	Foot-Mosfet	Ambient-Schtky	Foot-Schtky
CT1	1.1685 m	314.7666 u	1.3818 m	983.6022 u
CT2	83.1592 u	45.9858 u	179.9783 u	170.5655 u
CT3	24.9195 m	971.9596 u	24.7523 m	1.1865
CT4	1.6798	51.9837 m	1.2947	13.0167 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

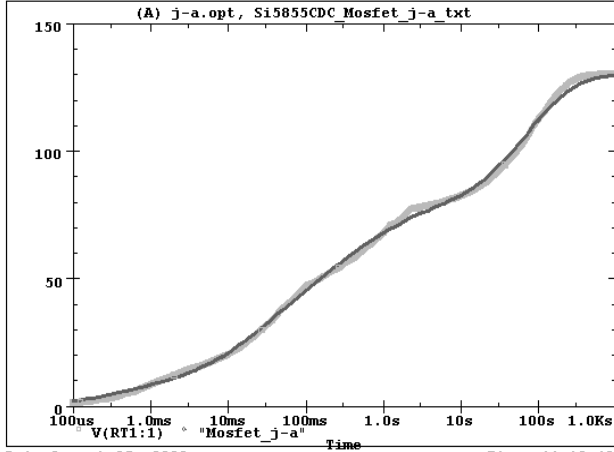
R-C VALUES FOR FILTER CONFIGURATION				
Thermal Resistance ($^{\circ}\text{C}/\text{W}$)				
Junction to	Ambient-Mosfet	Foot-Mosfet	Ambient-Schtky	Foot-Schtky
RF1	16.3112	11.0190	10.2030	5.3698
RF2	35.2453	25.0270	29.6981	16.3692
RF3	27.2518	8.6902	20.9806	14.1264
RF4	51.1917	263.8000 m	54.1183	4.1364
Thermal Capacitance (Joules/ $^{\circ}\text{C}$)				
Junction to	Ambient-Mosfet	Foot-Mosfet	Ambient-Schtky	Foot-Schtky
CF1	88.1702 u	45.9914 u	158.2357 u	106.2545 u
CF2	1.3321 m	284.9028 u	1.2511 m	550.3771 u
CF3	36.0319 m	4.2431 m	29.0465 m	1.7323 m
CF4	1.7520	191.5169 m	1.2953	82.3618 m

Note

NA indicates not applicable

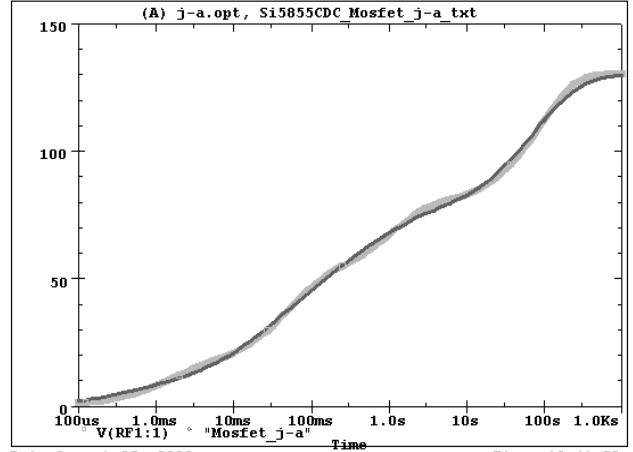


Si5855CDC Tank j-a Mosfet Temperature:27.0



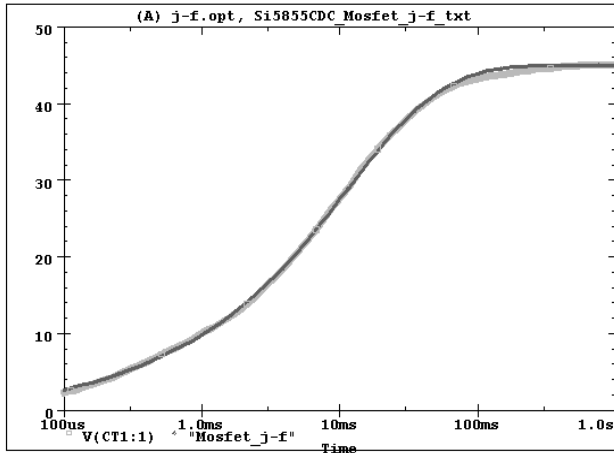
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Si5855CDC Filter j-a Mosfet Temperature:27.0



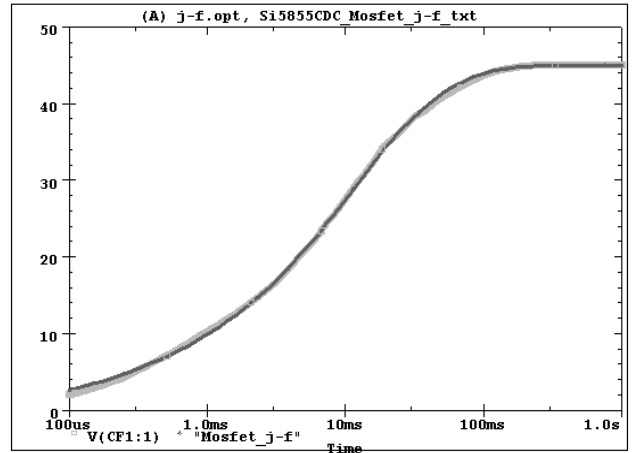
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Si5855CDC Tank j-f Mosfet Temperature:27.0



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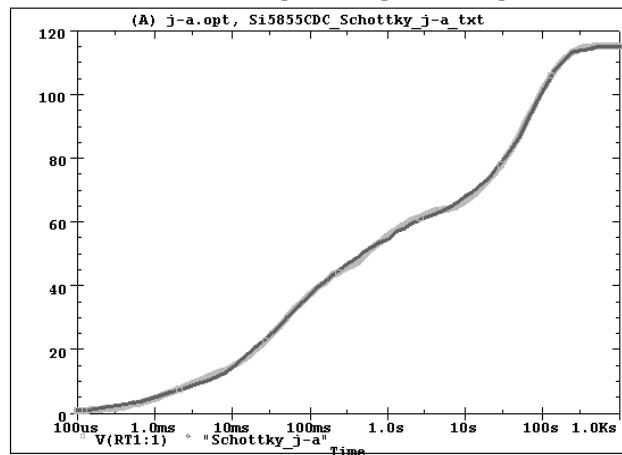
Si5855CDC Filter j-f Mosfet Temperature:27.0



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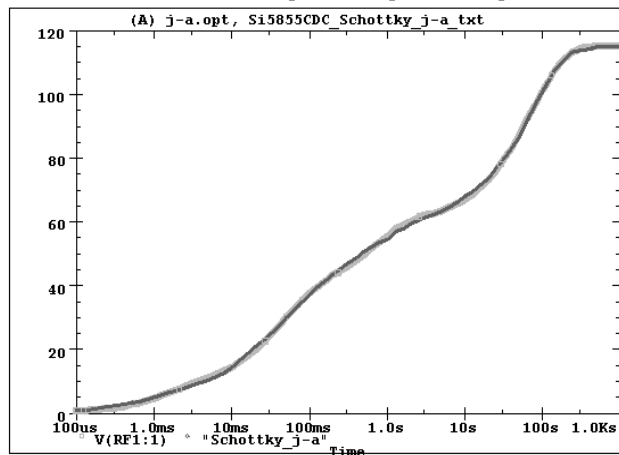


Si5855CDC Tank j-a Schottky Temperature:27.0



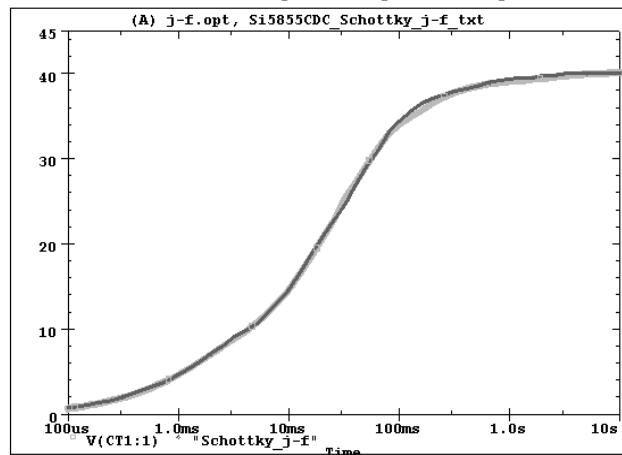
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Si5855CDC Filter j-a Schottky Temperature:27.0



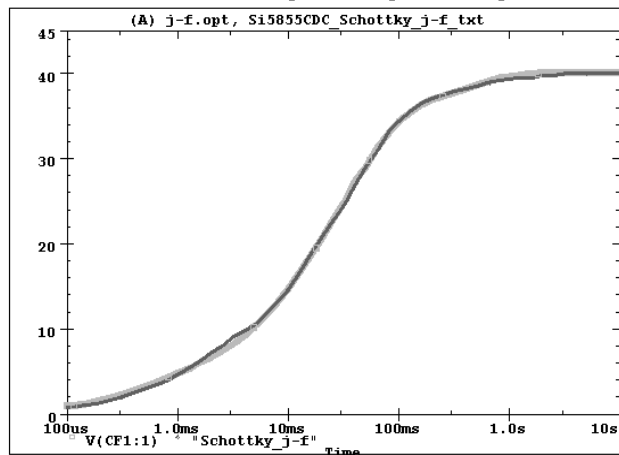
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Si5855CDC Tank j-f Schottky Temperature:27.0



Date:August 25, 2008 Time: 19:33:43

Si5855CDC Filter j-f Schottky Temperature:27.0



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