

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.

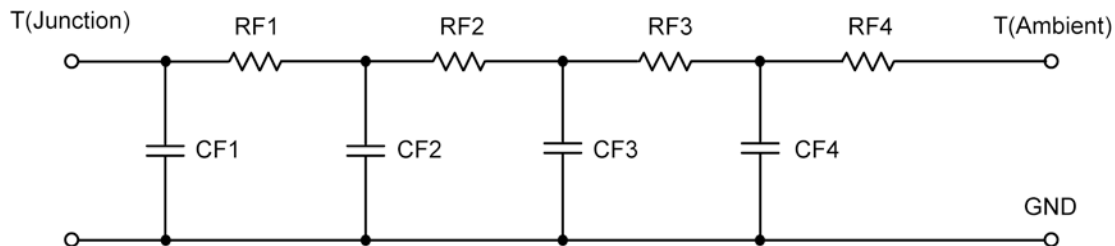
These RC values can be used in the P-SPICE simulation to evaluate the thermal behavior of the MOSFET junction temperature under a defined power profile. These techniques are described in Application Note AN609, "Thermal Simulation of Power MOSFETs on the P-Spice Platform."

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	4.6453	1.9999	N/A
RT2	13.6619	475.4006 m	N/A
RT3	11.5283	1.2087	N/A
RT4	51.1645	815.9994 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	3.8817 m	7.4537 m	N/A
CT2	20.9273 m	584.2162 u	N/A
CT3	213.3556 m	10.9717 m	N/A
CT4	1.2462	1.6916 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

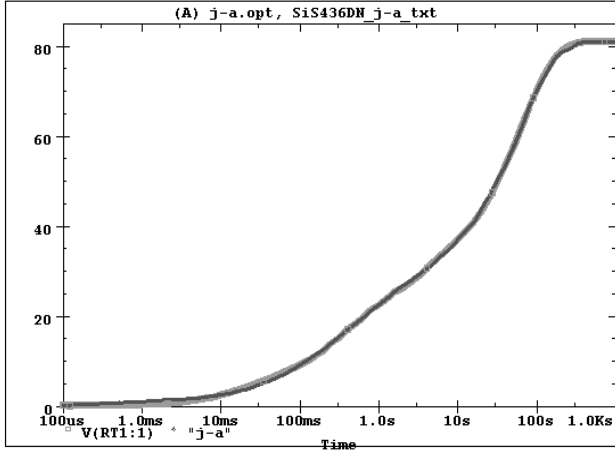
R-C VALUES FOR FILTER CONFIGURATION			
Thermal Resistance ($^{\circ}\text{C}/\text{W}$)			
Junction to	Ambient	Case	Foot
RF1	5.9512	692.2000 m	N/A
RF2	14.4532	867.5000 m	N/A
RF3	13.6153	1.2707	N/A
RF4	46.9803	1.6696	N/A
Thermal Capacitance (Joules/ $^{\circ}\text{C}$)			
Junction to	Ambient	Case	Foot
CF1	3.0940 m	370.0792 u	N/A
CF2	14.7516 m	371.2289 u	N/A
CF3	170.8814 m	3.8181 m	N/A
CF4	1.1663	173.8716 u	N/A

Note

NA indicates not applicable

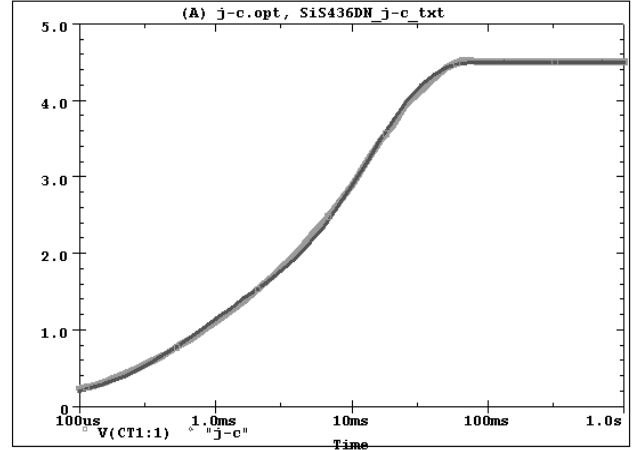


SiS436DN Tank j-a Temperature:27.0



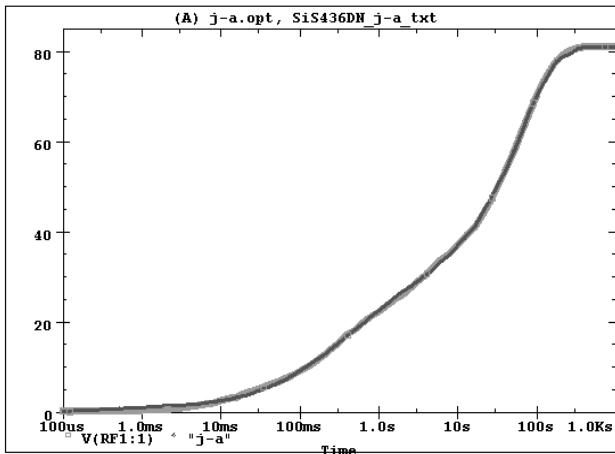
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SiS436DN Tank j-c Temperature:27.0



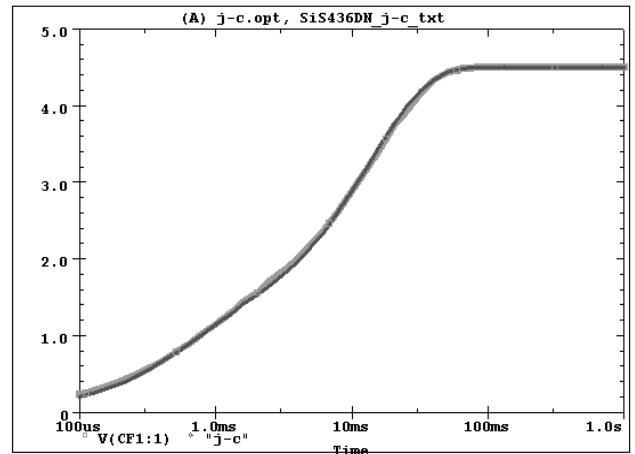
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SiS436DN Filter j-a Temperature:27.0



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SiS436DN Filter j-c Temperature:27.0



Date:January 27, 2009 Time:20:29:40