

## 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>			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	12.8811	6.8642	N/A
RT2	28.4971	3.8414	N/A
RT3	25.4273	2.8829	N/A
RT4	43.1945	5.4115	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	89.9547 u	575.8047 u	N/A
CT2	2.1032 m	213.7521 u	N/A
CT3	38.4861 m	48.1103 u	N/A
CT4	1.1252	166.1143 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**

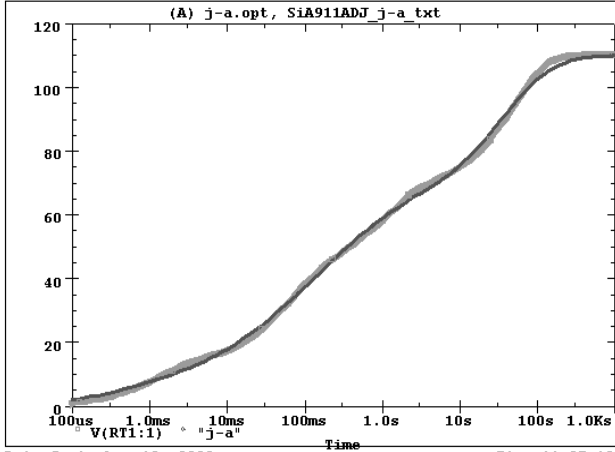
Thermal Resistance ( $^{\circ}\text{C}/\text{W}$ )			
Junction to	Ambient	Case	Foot
RF1	16.6834	8.6709	N/A
RF2	31.9645	7.2095	N/A
RF3	21.7849	1.5089	N/A
RF4	39.5672	1.6107	N/A
Thermal Capacitance (Joules/ $^{\circ}\text{C}$ )			
Junction to	Ambient	Case	Foot
CF1	113.0923 u	33.8495 u	N/A
CF2	2.6852 m	120.1442 u	N/A
CF3	63.9102 m	772.3910 u	N/A
CF4	1.2030	449.1532 u	N/A

**Note**

NA indicates not applicable

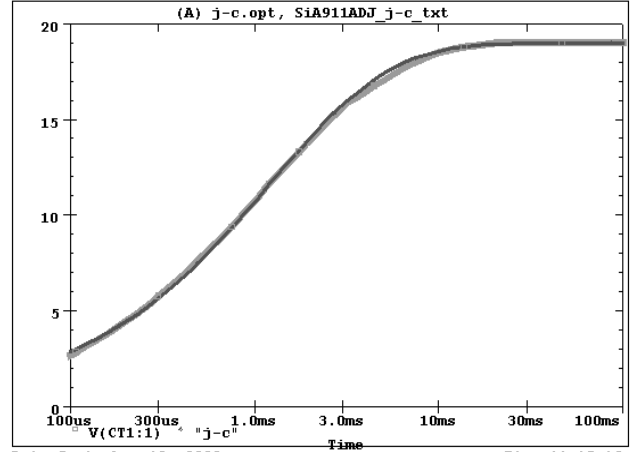


SiA911ADJ Tank j-a Temperature:27.0



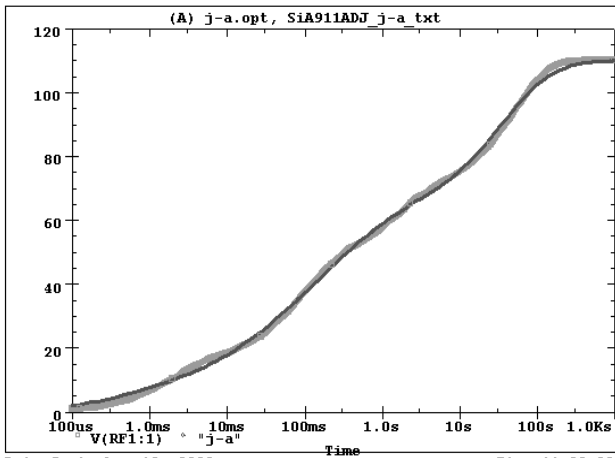
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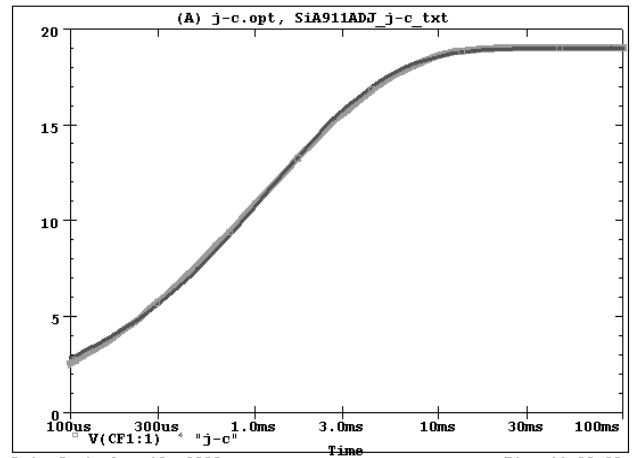
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