

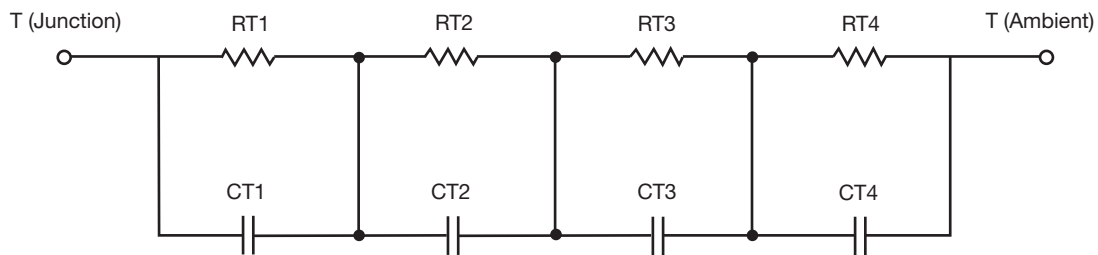
## R-C Thermal Model Parameters

### 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



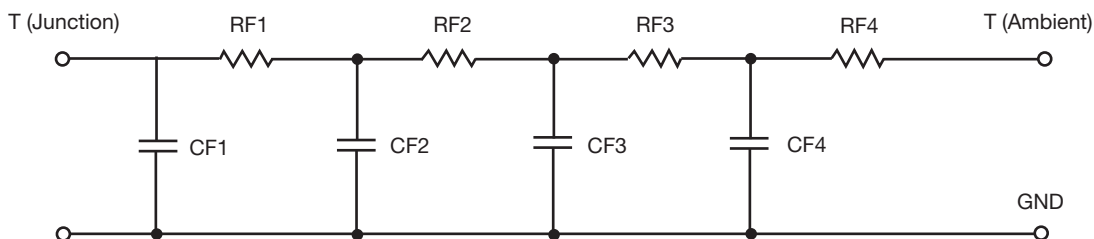
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	47.6205	N/A	14.5605
RT2	12.5842	N/A	9.0278
RT3	35.7827	N/A	2.5237
RT4	16.0126	N/A	11.8880
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.7132	N/A	4.1336m
CT2	1.5523	N/A	11.3274m
CT3	16.1627m	N/A	248.3970u
CT4	2.0575m	N/A	95.2399m

#### Note

N/A indicates not applicable

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

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



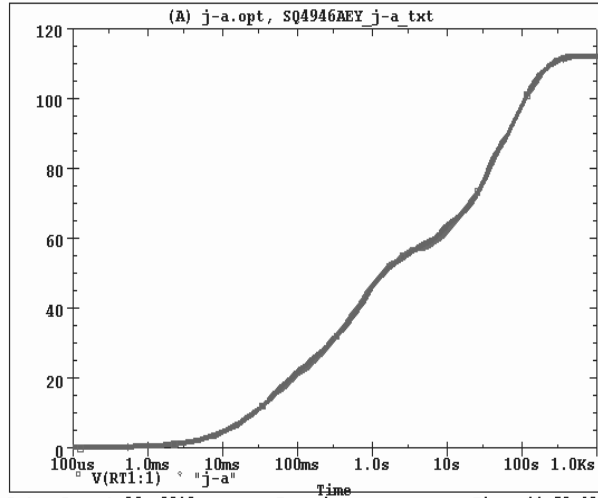
<b>R-C VALUES FOR FILTER CONFIGURATION</b>			
<b>THERMAL RESISTANCE (°C/W)</b>			
<b>Junction to</b>	<b>Ambient</b>	<b>Case</b>	<b>Foot</b>
RF1	19.4923	N/A	3.8836
RF2	26.7316	N/A	12.7655
RF3	14.3881	N/A	13.1339
RF4	51.3880	N/A	8.2170
<b>THERMAL CAPACITANCE (Joules/°C)</b>			
<b>Junction to</b>	<b>Ambient</b>	<b>Case</b>	<b>Foot</b>
CF1	1.7463m	N/A	277.1668u
CF2	12.8534m	N/A	3.0272m
CF3	140.1833m	N/A	1.0708m
CF4	1.1920	N/A	178.2266m

**Note**

N/A indicates not applicable

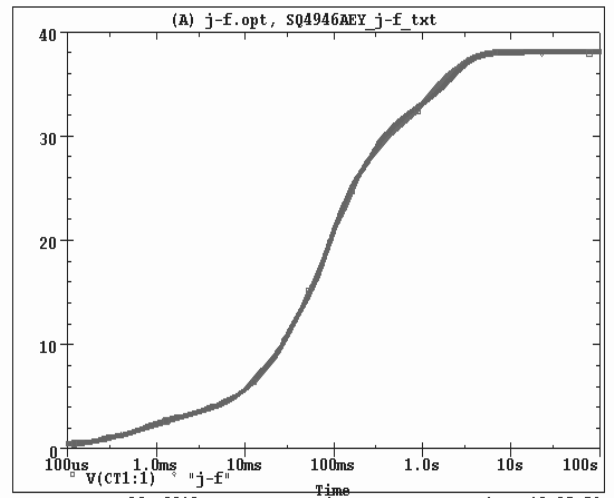


SQ4946AEY Tank j-a Temperature: 27.0



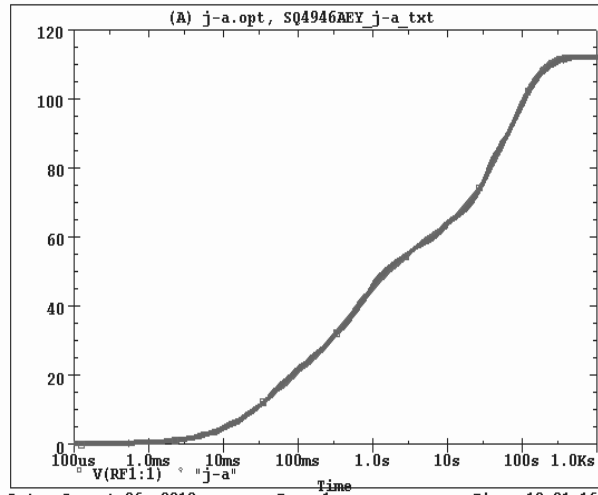
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SQ4946AEY Tank j-f Temperature: 27.0



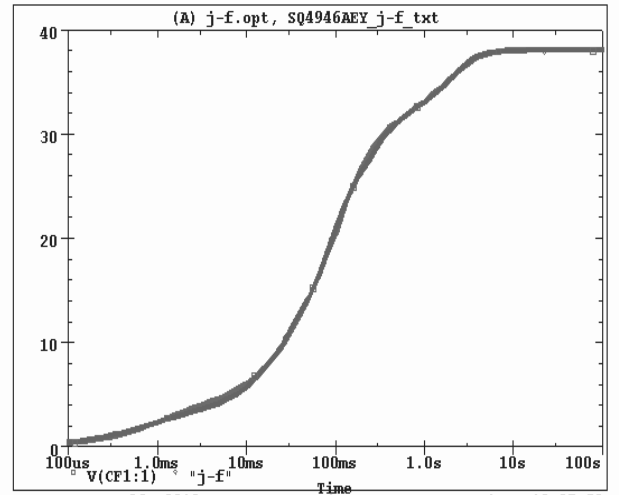
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SQ4946AEY Filter j-a Temperature: 27.0



Date: August 06, 2010 Page 1 Time: 12:21:16

SQ4946AEY Filter j-f Temperature: 27.0



Date: August 06, 2010 Page 1 Time: 12:27:52