R-C Thermal Model Parameters

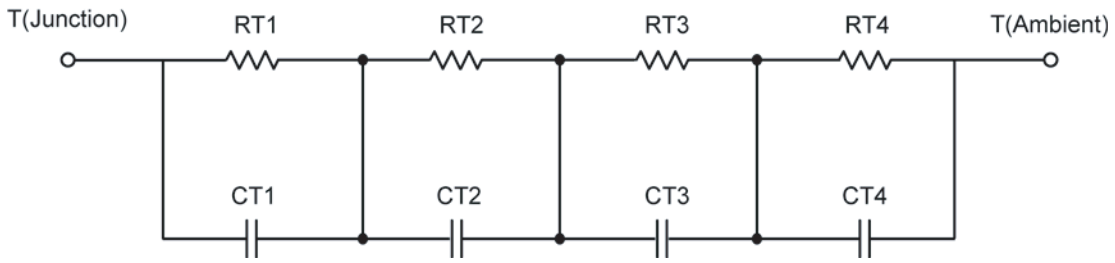
DESCRIPTION

The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "A Simple Method of Generating Thermal Models for a Power MOSFET"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse Transient Thermal Impedance curves for the MOSFET.

R-C values for the electrical circuit in the Foster/Tank and Cauer/Filter configurations are included.

Note:
For a detailed explanation of implementing these values in P-SPICE, refer to Application Note AN609 Thermal Simulations Of Power MOSFETs on P-SPICE Platform.

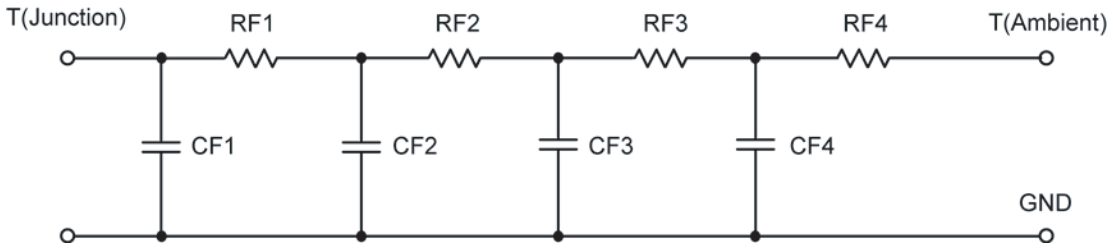
R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	9.3591	N/A	3.1460
RT2	10.2447	N/A	6.2934
RT3	34.6609	N/A	9.9745
RT4	55.2669	N/A	10.6399
Thermal Capacitance (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.2279 m	N/A	558.7645 u
CT2	269.9534 m	N/A	8.4734 m
CT3	7.8591 m	N/A	26.8604 m
CT4	1.4514	N/A	5.4834 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



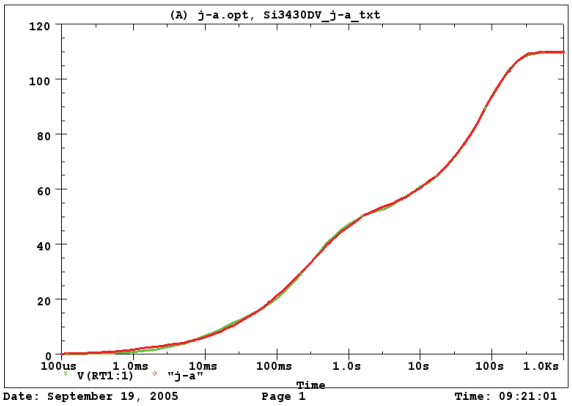
R-C VALUES FOR FILTER CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RF1	5.9193	N/A	3.4602
RF2	26.0868	N/A	10.4852
RF3	22.4318	N/A	10.9596
RF4	55.0698	N/A	5.0732
Thermal Capacitance (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	549.2082 u	N/A	393.2062 u
CF2	3.3792 m	N/A	2.3568 m
CF3	30.0263 m	N/A	754.3611 u
CF4	1.3573	N/A	50.3120 m

Note: NA indicates not applicable

Reference:

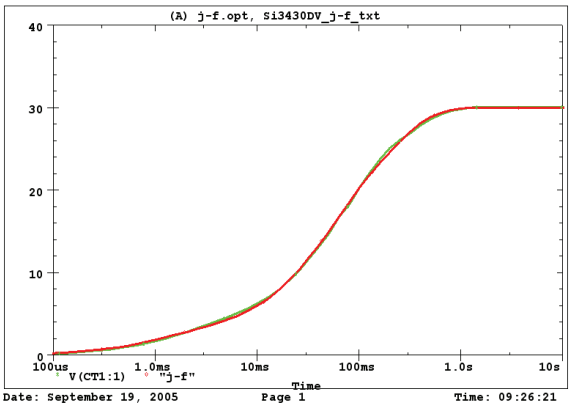
[1] "A Simple Method of Generating Thermal Models for a Power MOSFET" by Wharton McDaniel and Kandarp Pandya, IEEE / SEMITHERM 2002

Si3430DV Tank j-a Temperature: 27.0



Date: September 19, 2005 Page 1 Time: 09:21:01

Si3430DV Tank j-f Temperature: 27.0



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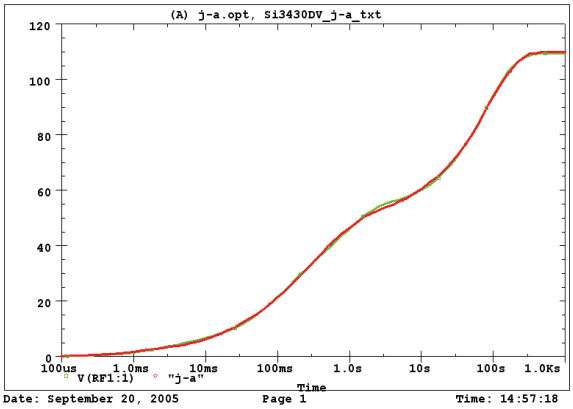
Si3430DV Filter j-a Temperature: 27.0



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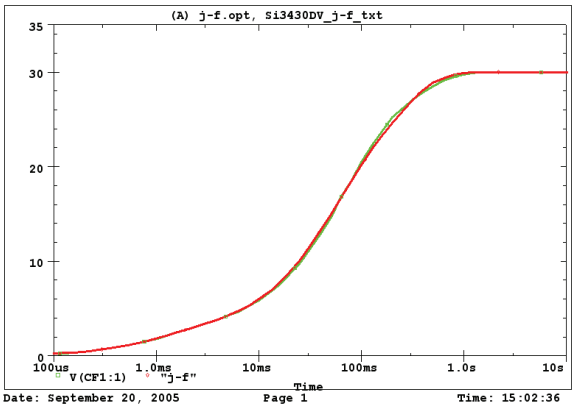
Si3430DV Filter j-f Temperature: 27.0



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