R-C Thermal Model Parameters

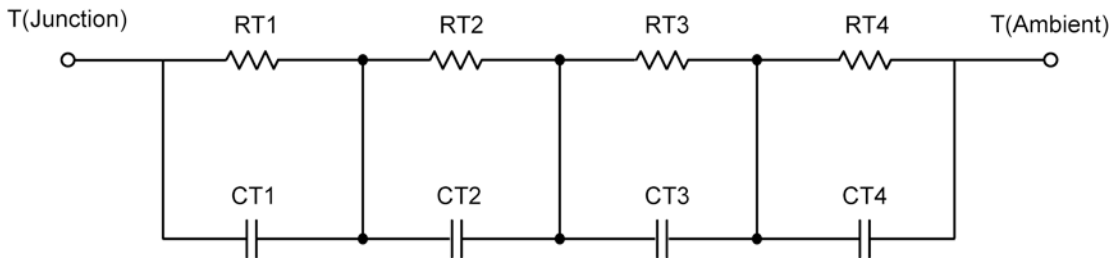
DESCRIPTION

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.

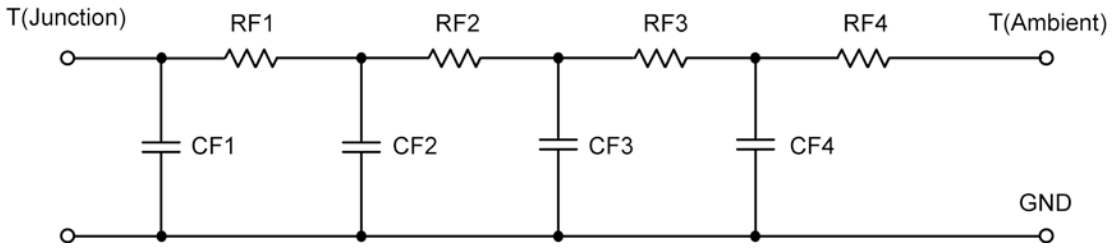
R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	219.6709	N/A	N/A
RT2	48.4012	N/A	N/A
RT3	151.3088	N/A	N/A
RT4	230.6191	N/A	N/A
Thermal Capacitance (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	49.0316 m	N/A	N/A
CT2	15.0301 m	N/A	N/A
CT3	777.0842 m	N/A	N/A
CT4	29.6834 m	N/A	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

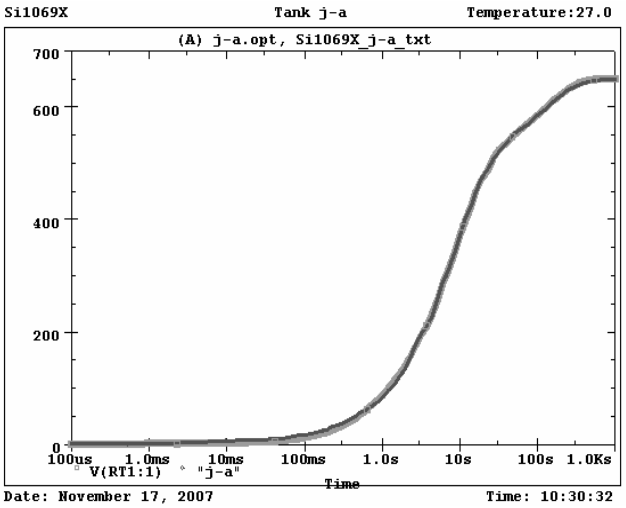


R-C VALUES FOR FILTER CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RF1	99.5138	N/A	N/A
RF2	220.7992	N/A	N/A
RF3	189.5926	N/A	N/A
RF4	140.0944	N/A	N/A
Thermal Capacitance (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	7.0154 m	N/A	N/A
CF2	11.0921 m	N/A	N/A
CF3	2.8720 m	N/A	N/A
CF4	765.2724 m	N/A	N/A

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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400
200
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1.0ms
10ms
100ms
1.0s
10s
100s
1.0Ks
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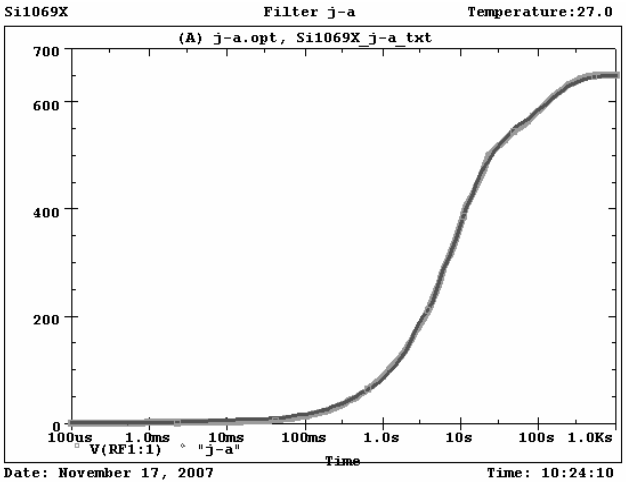
Time
Date: November 17, 2007
Time: 10:30:32


Si1069X
Filter j-a
Temperature:27.0
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600
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100us
1.0ms
10ms
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1.0s
10s
100s
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