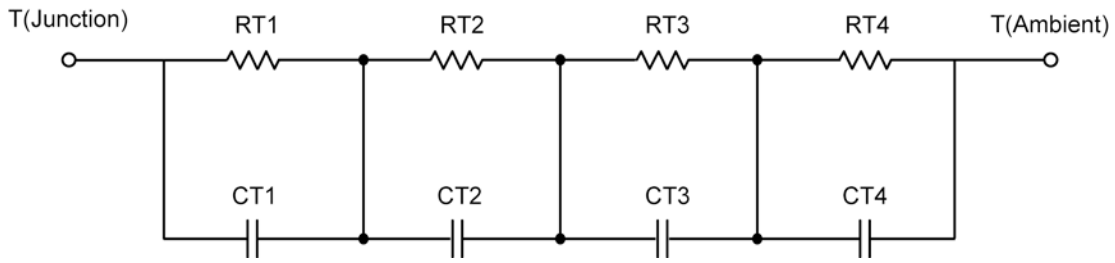
R-C Thermal Model Parameters

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."

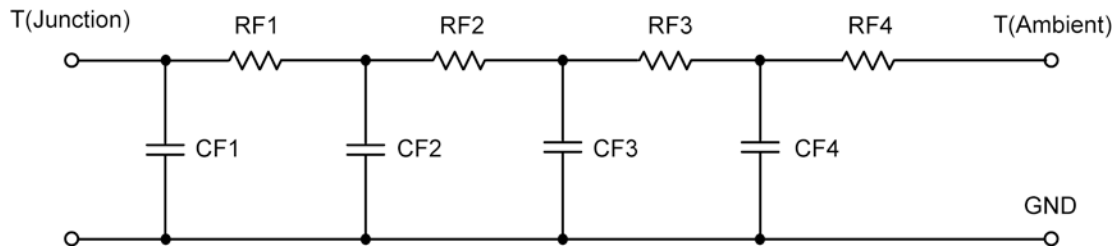
R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	N/A	139.3219 m	N/A
RT2	N/A	290.4073 m	N/A
RT3	N/A	75.4954 m	N/A
RT4	N/A	94.7754 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	N/A	8.4102 m	N/A
CT2	N/A	68.3628 m	N/A
CT3	N/A	1.8178	N/A
CT4	N/A	5.6261 m	N/A

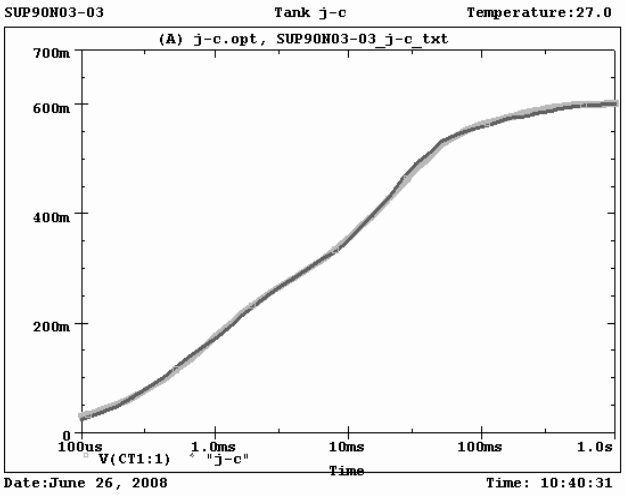
This document is intended as a SPICE modeling guideline and does not constitute a commercial product data sheet. Designers should refer to the appropriate data sheet of the same number for guaranteed specification limits.

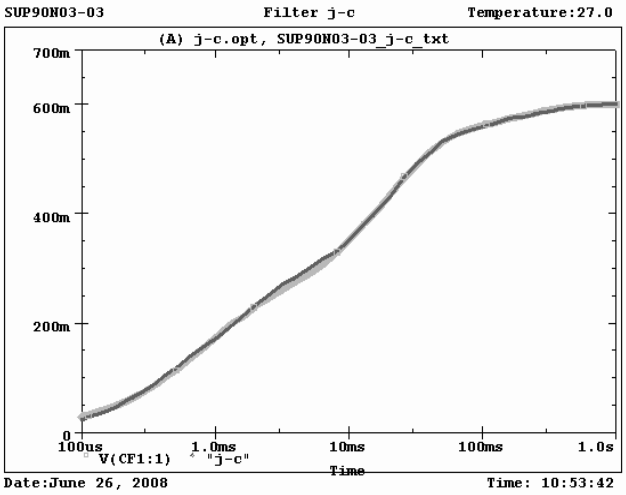
R-C THERMAL MODEL FOR FILTER CONFIGURATION



R-C VALUES FOR FILTER CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RF1	N/A	235.5160 m	N/A
RF2	N/A	203.8045 m	N/A
RF3	N/A	108.4878 m	N/A
RF4	N/A	52.1917 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	N/A	3.2972 m	N/A
CF2	N/A	54.5664 m	N/A
CF3	N/A	4.3888 m	N/A
CF4	N/A	3.2432	N/A

Note
NA indicates not applicable


SUP90N03-03
Tank j-c
Temperature:27.0
(A) j-c.opt, SUP90N03-03_j-c_txt
700m
600m
400m
200m
0
100us
1.0ms
10ms
100ms
1.0s
V(CT1:1) "j-c"
Time
Date:June 26, 2008
Time: 10:40:31


SUP90N03-03
Filter j-c
Temperature:27.0
(A) j-c.opt, SUP90N03-03_j-c_txt
700m
600m
400m
200m
0
100us
1.0ms
10ms
100ms
1.0s
V(CF1:1) "j-c"
Time
Date:June 26, 2008
Time: 10:53:42