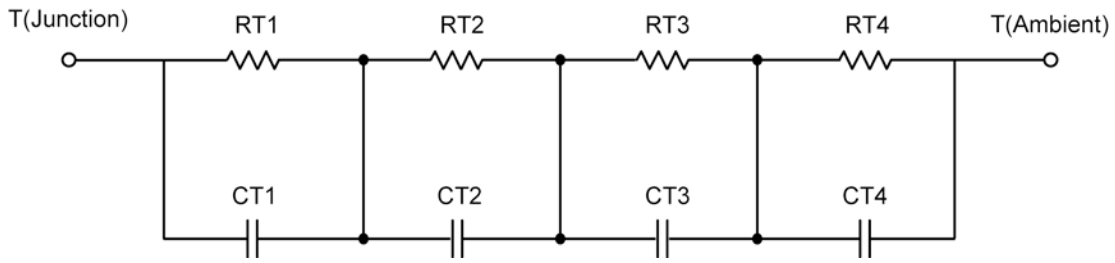
R-C Thermal Model Parameters

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."

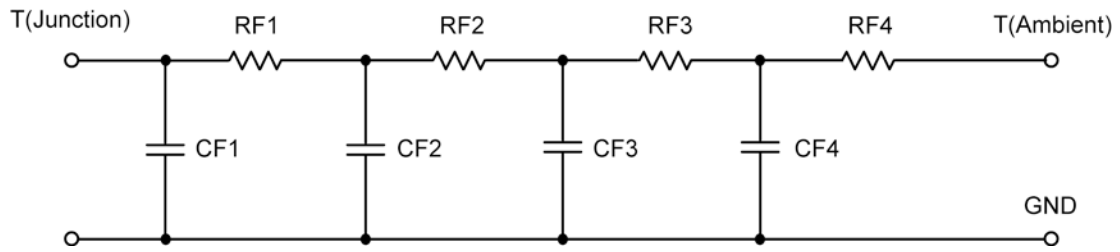
R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	N/A	366.5767 m	N/A
RT2	N/A	449.5122 m	N/A
RT3	N/A	14.0393 m	N/A
RT4	N/A	369.8718 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	N/A	3.5743 m	N/A
CT2	N/A	15.6502 m	N/A
CT3	N/A	139.6593 m	N/A
CT4	N/A	1.6391 m	N/A

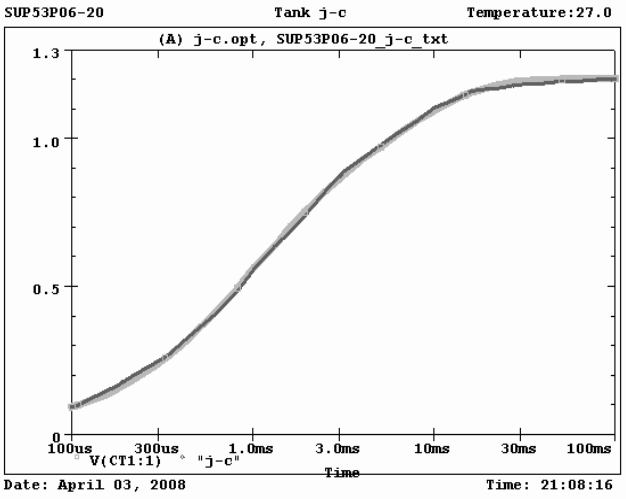
This document is intended as a SPICE modeling guideline and does not constitute a commercial product data sheet. Designers should refer to the appropriate data sheet of the same number for guaranteed specification limits.

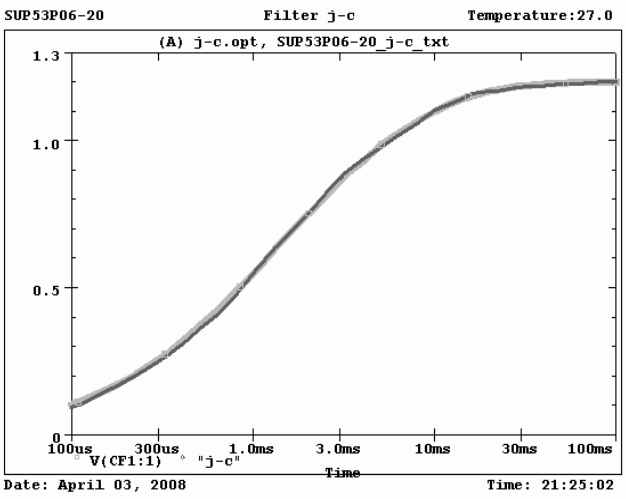
R-C THERMAL MODEL FOR FILTER CONFIGURATION



R-C VALUES FOR FILTER CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RF1	N/A	532.4170 m	N/A
RF2	N/A	416.8318 m	N/A
RF3	N/A	224.2036 m	N/A
RF4	N/A	26.5476 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	N/A	883.8216 u	N/A
CF2	N/A	2.4056 m	N/A
CF3	N/A	20.2564 m	N/A
CF4	N/A	728.9842 m	N/A

Note
NA indicates not applicable


SUP53P06-20
Tank j-c
Temperature:27.0
(A) j-c.opt, SUP53P06-20_j-c_txt
1.3
1.0
0.5
0
100us
300us
1.0ms
3.0ms
10ms
30ms
100ms
V(CT1:1) - "j-c"
Time
Date: April 03, 2008
Time: 21:08:16


SUP53P06-20
Filter j-c
Temperature:27.0
(A) j-c.opt, SUP53P06-20_j-c_txt
1.3
1.0
0.5
0
100us
300us
1.0ms
3.0ms
10ms
30ms
100ms
V(CF1:1) - "j-c"
Time
Date: April 03, 2008
Time: 21:25:02