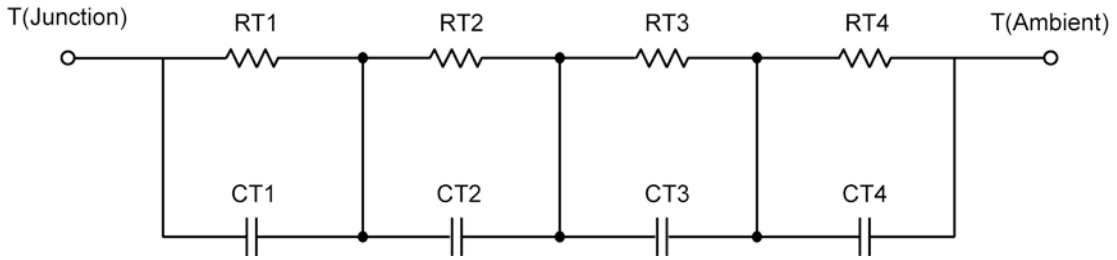
R-C Thermal Model Parameters

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."

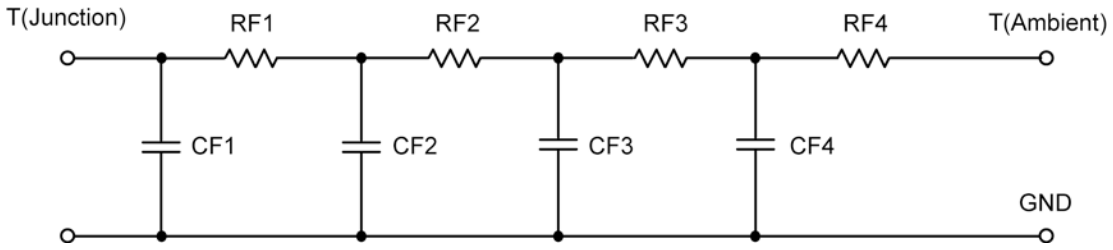
R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	4.9128	126.0748 m	N/A
RT2	8.0497	567.0309 m	N/A
RT3	11.6062	999.9631 m	N/A
RT4	56.4313	706.9312 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	6.7858 m	363.1241 m	N/A
CT2	33.9417 m	973.9712 u	N/A
CT3	137.3897 m	11.9034 m	N/A
CT4	1.2385	16.8319 m	N/A

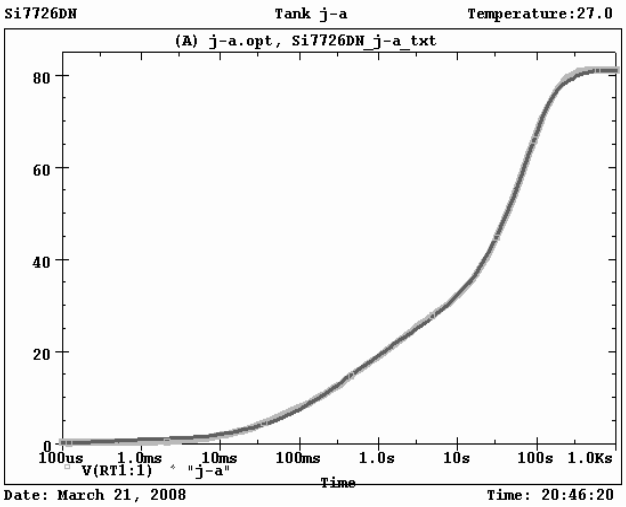
This document is intended as a SPICE modeling guideline and does not constitute a commercial product data sheet. Designers should refer to the appropriate data sheet of the same number for guaranteed specification limits.

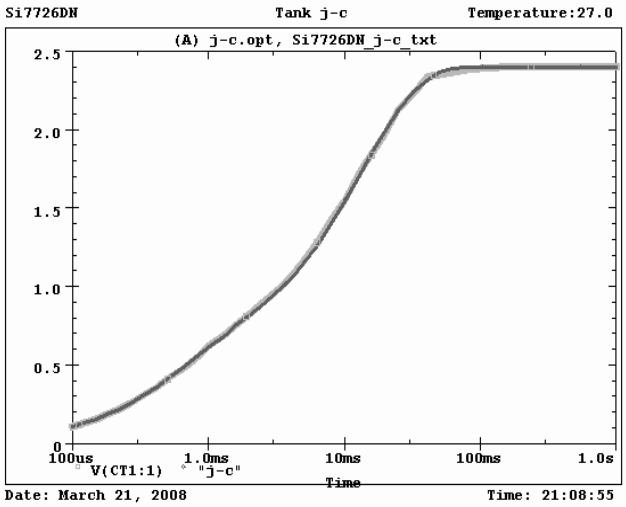
R-C THERMAL MODEL FOR FILTER CONFIGURATION

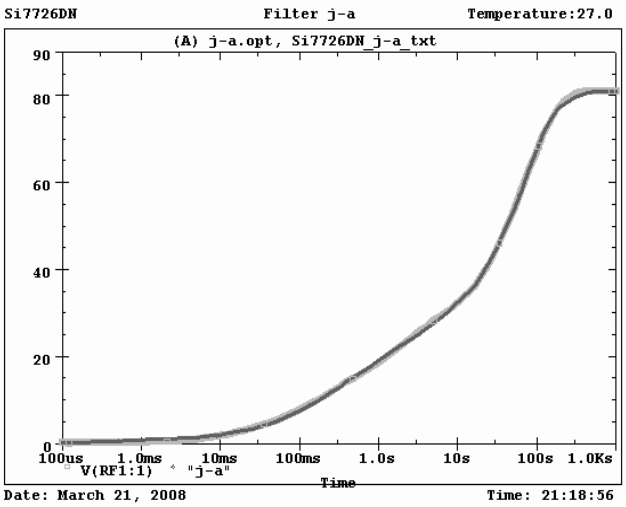


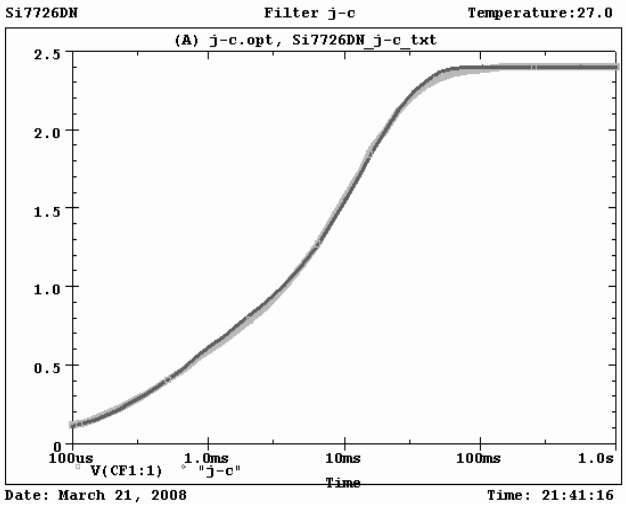
R-C VALUES FOR FILTER CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RF1	4.4892	643.3376 m	N/A
RF2	9.3327	678.0059 m	N/A
RF3	13.5777	963.0819 m	N/A
RF4	53.6004	115.5746 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	4.2883 m	810.5761 u	N/A
CF2	11.1274 m	5.5294 m	N/A
CF3	97.0107 m	684.1345 u	N/A
CF4	1.1941	309.4443 m	N/A

Note: NA indicates not applicable


Si7726DN
Tank j-a
Temperature:27.0
(A) j-a.opt, Si7726DN_j-a_txt
80
60
40
20
0
100us
1.0ms
10ms
100ms
1.0s
10s
100s
1.0Ks
V(RT1:1)
"j-a"
Time
Date: March 21, 2008
Time: 20:46:20


Si7726DN
Tank j-c
Temperature:27.0
(A) j-c.opt, Si7726DN_j-c_txt
2.5
2.0
1.5
1.0
0.5
0
100us
1.0ms
10ms
100ms
1.0s
V(CT1:1)
"j-c"
Time
Date: March 21, 2008
Time: 21:08:55


Si7726DN
Filter j-a
Temperature:27.0
(A) j-a.opt, Si7726DN_j-a_txt
90
80
60
40
20
0
100us
1.0ms
10ms
100ms
1.0s
10s
100s
1.0Ks
V(RF1:1)
"j-a"
Time
Date: March 21, 2008
Time: 21:18:56


Si7726DN
Filter j-c
Temperature:27.0
(A) j-c.opt, Si7726DN_j-c_txt
2.5
2.0
1.5
1.0
0.5
0
100us
1.0ms
10ms
100ms
1.0s
V(CF1:1)
"j-c"
Time
Date: March 21, 2008
Time: 21:41:16