

R-C Thermal Model Parameters

DESCRIPTION

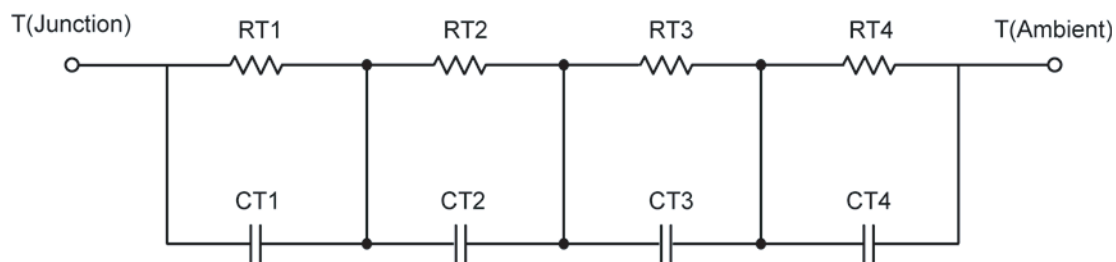
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse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

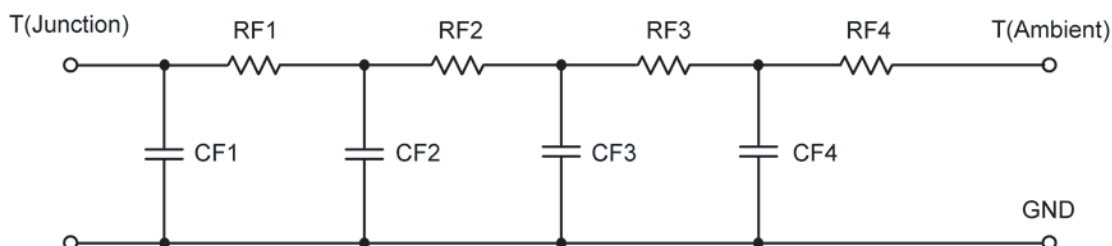
For a detailed explanation of implementing these values in P-SPIICE, refer to [Application Note AN609 Thermal Simulations Of Power MOSFETs on P-SPIICE Platform](#).

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	2.3510	N/A	206.8218 m
RT2	22.3383	N/A	4.2280
RT3	31.8527	N/A	8.8272
RT4	23.4503	N/A	5.6292
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	10.8671 m	N/A	9.5541 m
CT2	48.7958 m	N/A	133.6946 m
CT3	1.8249	N/A	180.3975 m
CT4	4.3203	N/A	12.3666 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 ($^{\circ}\text{C}/\text{W}$)			
Junction to	Ambient	Case	Foot
RF1	3.7489	N/A	3.2793
RF2	22.2239	N/A	5.0772
RF3	32.9041	N/A	7.7099
RF4	21.1242	N/A	2.8938
Thermal Capacitance (Joules/ $^{\circ}\text{C}$)			
Junction to	Ambient	Case	Foot
CF1	12.2646 m	N/A	8.1813 m
CF2	32.9132 m	N/A	6.5963 m
CF3	1.1221	N/A	88.4814 m
CF4	1.2290	N/A	361.1455 m

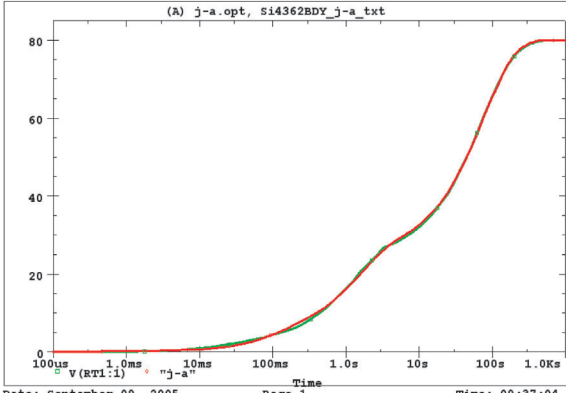
Note: NA indicates not applicable

Reference:

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

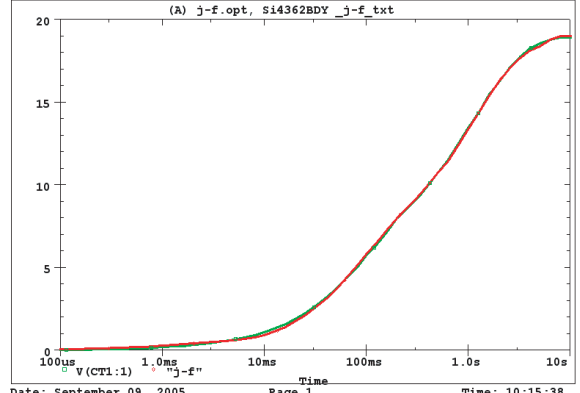


Si4362BDY Tank j-a Temperature: 27.0



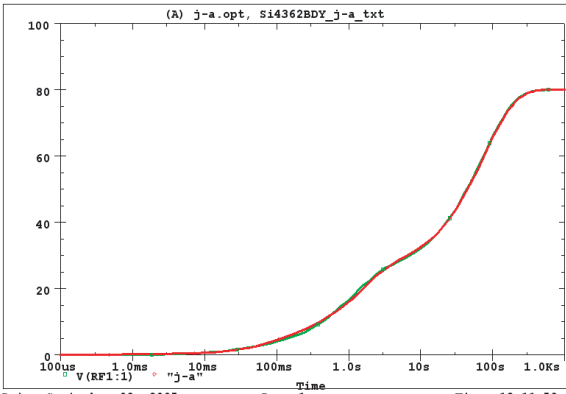
Date: September 09, 2005 Page 1 Time: 09:37:04

Si4362BDY Tank j-f Temperature: 27.0



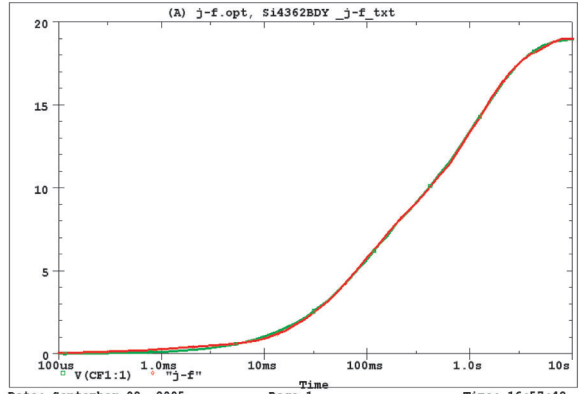
Date: September 09, 2005 Page 1 Time: 10:15:38

Si4362BDY Filter j-a Temperature: 27.0



Date: September 09, 2005 Page 1 Time: 12:11:59

Si4362BDY Filter j-f Temperature: 27.0



Date: September 09, 2005 Page 1 Time: 16:57:42