

R-C Thermal Model Parameters

DESCRIPTION

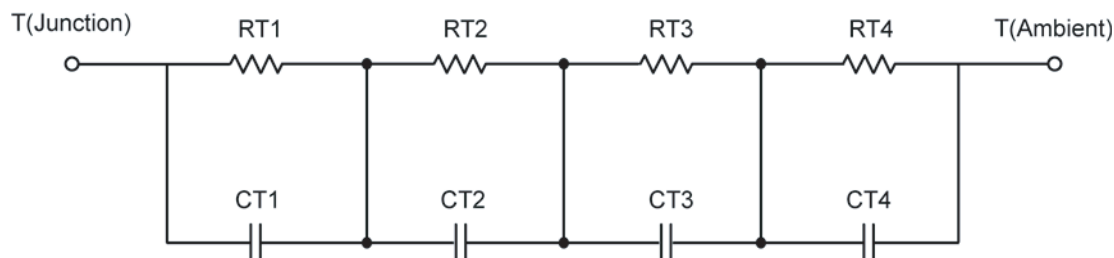
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse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

R-C values for the electrical circuit in the Foster/Tank configuration are included. The corresponding values for the Cauer/Filter configuration are available upon request.

Note:

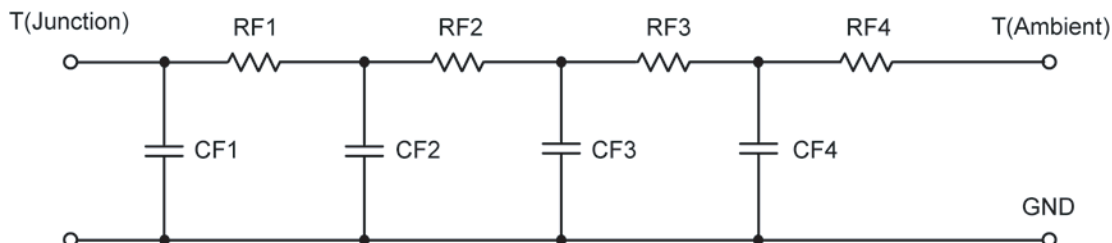
For a detailed explanation of implementing these values in P-SPICE, refer to [Application Note AN609 Thermal Simulations Of Power MOSFETs on P-SPICE Platform](#).

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	20.4296	N/A	5.0806
RT2	28.4182	N/A	1.4103
RT3	5.5776	N/A	3.5572
RT4	25.5405	N/A	5.9561
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	64.5972 m	N/A	119.9260 m
CT2	2.4971	N/A	106.5321 m
CT3	26.8398 m	N/A	13.9221 m
CT4	3.3254	N/A	339.1358 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 (°C/W)			
Junction to	Ambient	Case	Foot
RF1	7.7654	N/A	4.7871
RF2	17.8906	N/A	3.9192
RF3	28.3863	N/A	6.5521
RF4	26.3273	N/A	755.2501 m
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	16.7691 m	N/A	10.3395 m
CF2	43.2305 m	N/A	32.2002 m
CF3	937.8379 m	N/A	127.3779 m
CF4	1.8165	N/A	3.8073

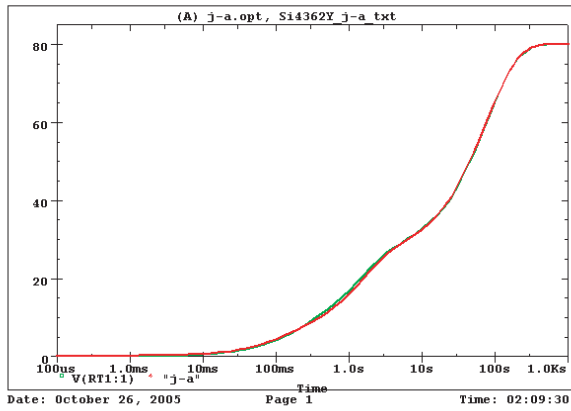
Note: NA indicates not applicable

Reference:

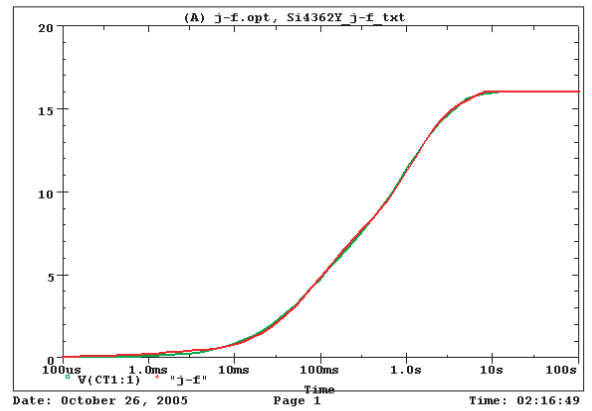
[1] "A Simple Method of Generating Thermal Models for a Power MOSFET" by Wharton McDaniel and Kandarp Pandya, IEEE / SEMITHERM 2002



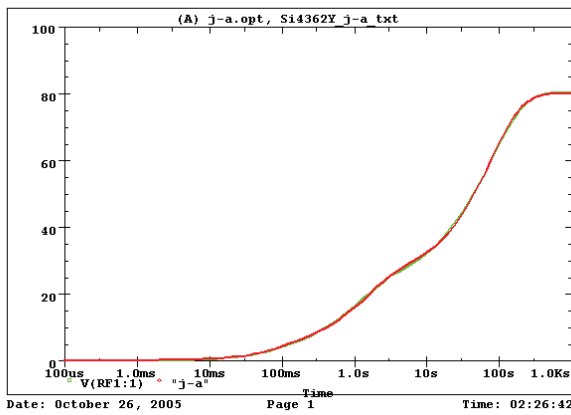
Si4362DY Tank j-a Temperature: 27.0



Si4362DY Tank j-f Temperature: 27.0



Si4362DY Filter j-a Temperature: 27.0



Si4362DY Filter j-f Temperature: 27.0

