

R-C Thermal Model Parameters

DESCRIPTION

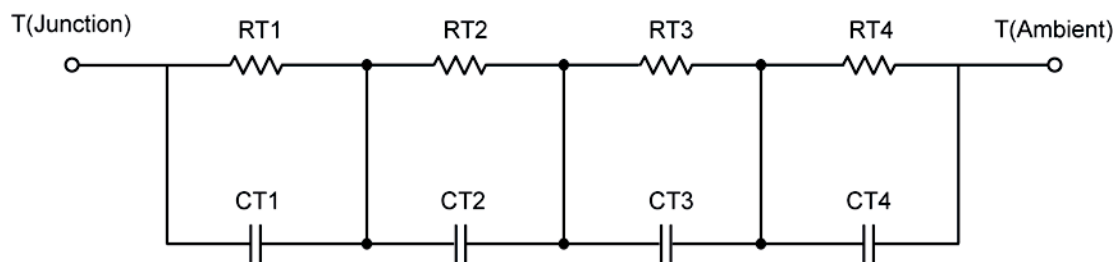
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse 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-SPICE, refer to [Application Note AN609 Thermal Simulations Of Power MOSFETs on P-SPICE Platform](#).

R-C THERMAL MODEL FOR TANK CONFIGURATION

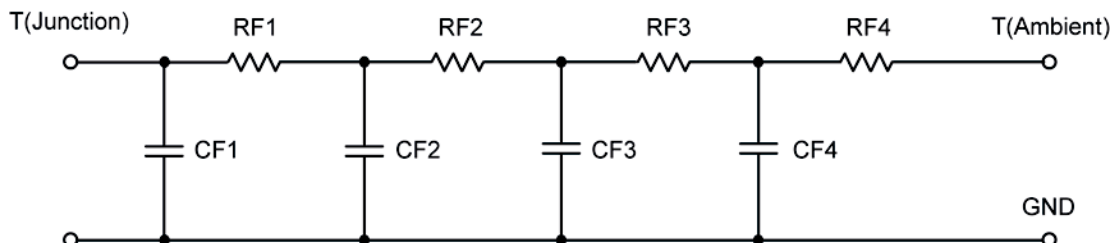


R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	3.2035	1.2603	N/A
RT2	26.4704	1.0375	N/A
RT3	16.2843	809.9000 m	N/A
RT4	6.0418	2.0923	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	599.1012 u	1.5159 m	N/A
CT2	4.7811	335.3878 u	N/A
CT3	1.2787	207.9560 m	N/A
CT4	116.1746 m	10.8832 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	3.1866	1.3136	N/A
RF2	6.8815	1.7548	N/A
RF3	21.3879	1.3611	N/A
RF4	20.5440	770.5000 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	608.3905 u	226.8507 u	N/A
CF2	95.4496 m	1.5660 m	N/A
CF3	836.6297 m	14.1467 m	N/A
CF4	4.5749	159.1429 m	N/A

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

