

R-C Thermal Model Parameters

DESCRIPTION

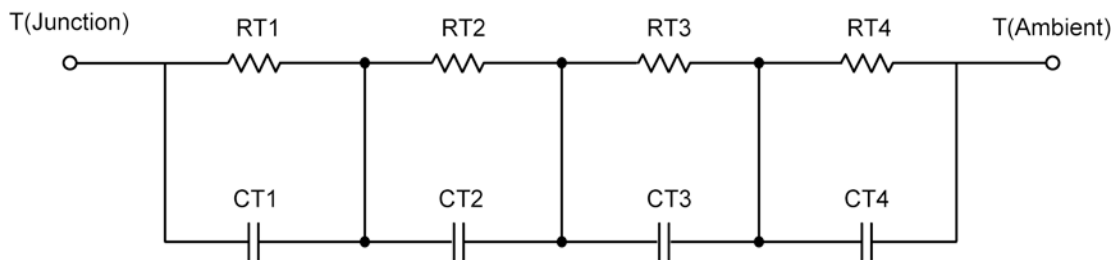
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse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

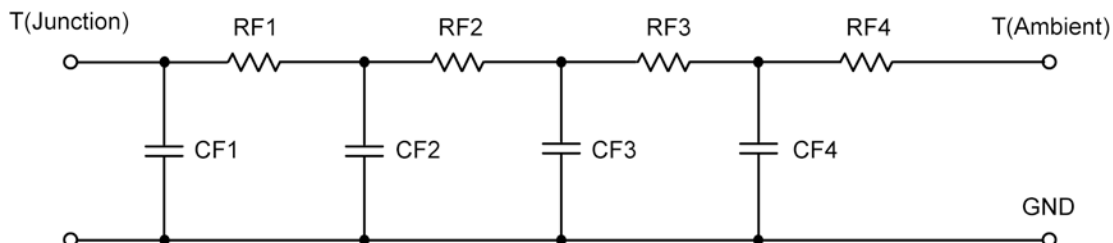


R-C VALUES FOR TANK CONFIGURATION			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	8.4163	329.8317 m	N/A
RT2	16.0244	825.6628 m	N/A
RT3	2.6000	108.2953 m	N/A
RT4	22.9593	336.2102 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	129.7064 m	4.8907 m	N/A
CT2	4.9650	32.7799 m	N/A
CT3	7.4883 m	1.6888 m	N/A
CT4	2.0514	6.5927 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	2.0212	557.3855 m	N/A
RF2	8.7293	606.4934 m	N/A
RF3	14.5066	168.1588 m	N/A
RF4	24.7429	267.9623 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	3.9946 m	1.3749 m	N/A
CF2	78.9608 m	7.9814 m	N/A
CF3	903.5859 m	60.8182 m	N/A
CF4	1.2403	35.1831 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

