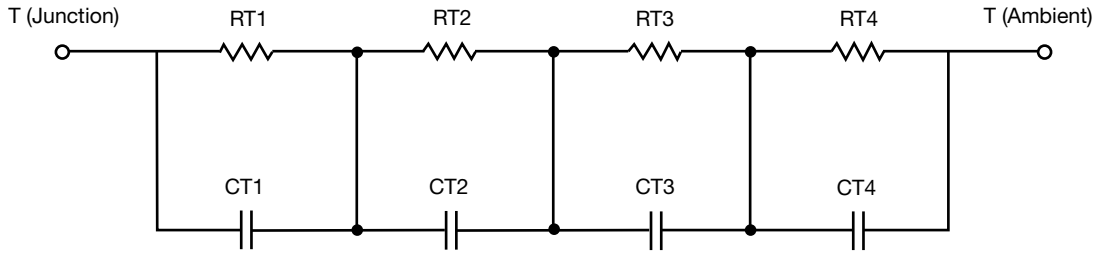
R-C Thermal Model Parameters

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



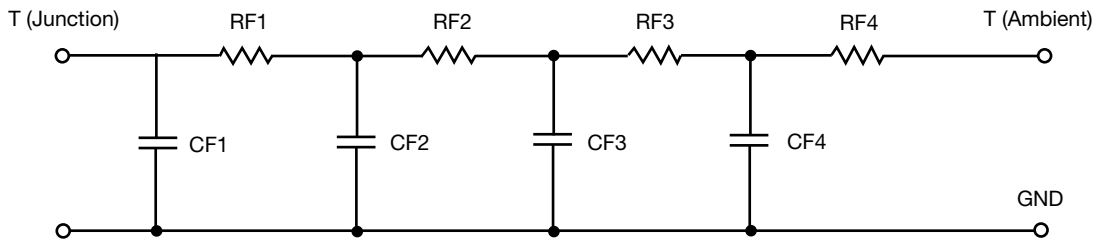
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	6.4558	1.2259	N/A
RT2	13.7458	3.2054	N/A
RT3	19.5591	1.6896	N/A
RT4	30.0073	2.3199	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	2.2813m	673.3715u	N/A
CT2	86.6916m	27.4608m	N/A
CT3	3.3224	3.0710m	N/A
CT4	2.0141	22.2278m	N/A

Note

- n/a indicates not applicable

This document is intended as a SPICE modeling guideline and does not constitute a commercial product datasheet. Designers should refer to the appropriate datasheet 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	5.5565	2.5893	N/A
RF2	17.6711	2.2840	N/A
RF3	28.6876	2.4076	N/A
RF4	18.1260	1.1293	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	1.4850m	575.2606u	N/A
CF2	75.7531m	9.2846m	N/A
CF3	1.2045	567.9328u	N/A
CF4	879.0622m	5.3482u	N/A

Note

- n/a indicates not applicable