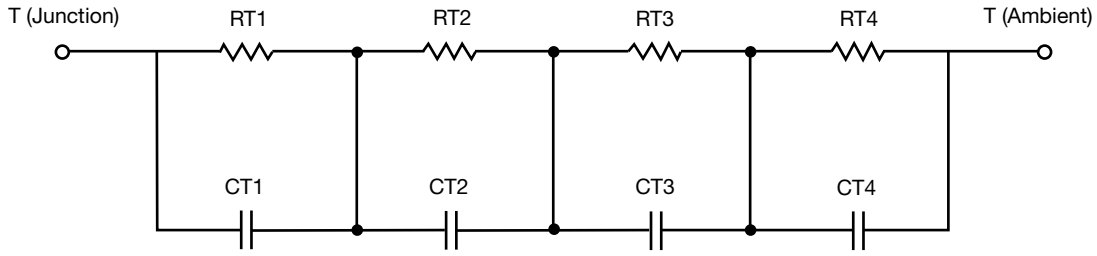
R-C Thermal Model Parameters

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



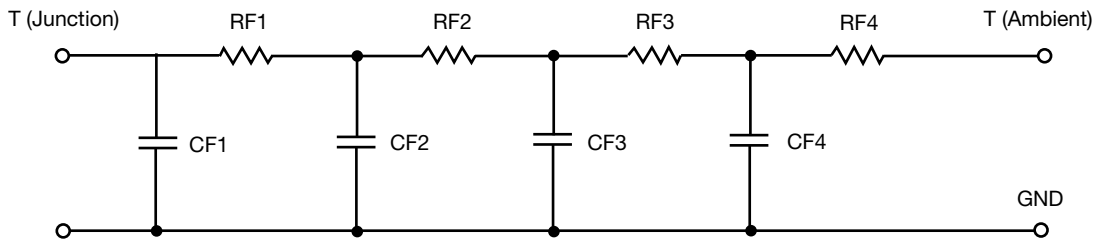
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	10.9443	1.3204	N/A
RT2	4.1814	2.1964	N/A
RT3	17.8825	573.2211m	N/A
RT4	51.2081	604.4162m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.6337	3.8316m	N/A
CT2	2.6961m	651.8232u	N/A
CT3	65.7986m	114.8605u	N/A
CT4	6.9083	18.2587m	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	4.5122	193.2496m	N/A
RF2	14.5603	2.1252	N/A
RF3	14.8782	875.5939m	N/A
RF4	49.3836	1.4868	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	2.4572m	72.9101u	N/A
CF2	49.7428m	175.7941u	N/A
CF3	474.9736m	1.5432m	N/A
CF4	6.0579	80.9910u	N/A

Note

- n/a indicates not applicable