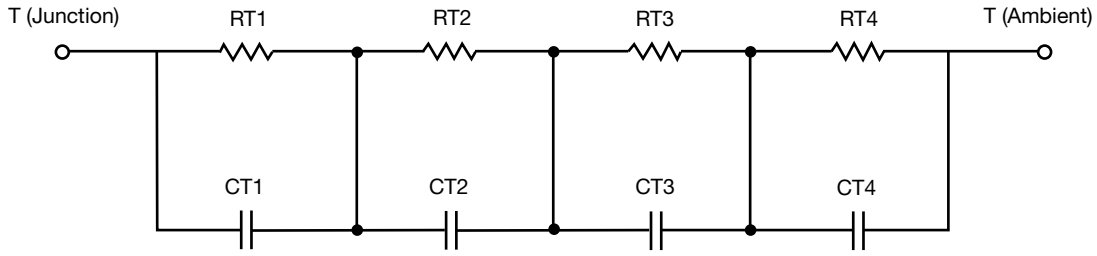
R-C Thermal Model Parameters

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



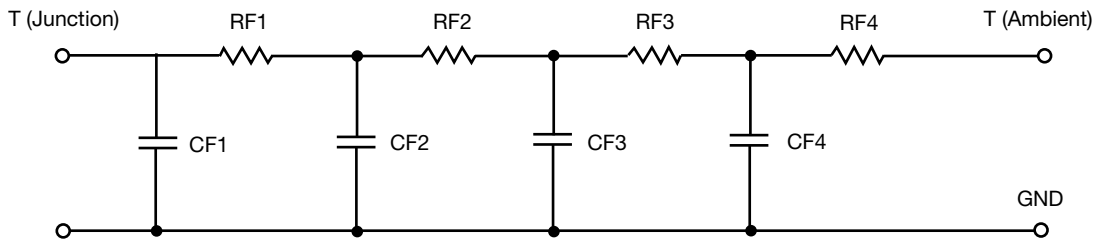
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	9.2841	1.9449	N/A
RT2	9.7329	1.3662	N/A
RT3	18.5750	342.5063m	N/A
RT4	51.4124	352.0414m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	30.4813m	1.1015m	N/A
CT2	3.4341m	370.0230u	N/A
CT3	65.9498m	20.3104u	N/A
CT4	1.2820	7.5904m	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	6.1085	701.7873m	N/A
RF2	21.5578	2.4517	N/A
RF3	15.4113	479.1094m	N/A
RF4	46.1705	367.4033m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	1.4785m	64.2168u	N/A
CF2	9.9352m	315.5110u	N/A
CF3	158.7802m	1.6700m	N/A
CF4	1.3406	112.1401u	N/A

Note

- n/a indicates not applicable