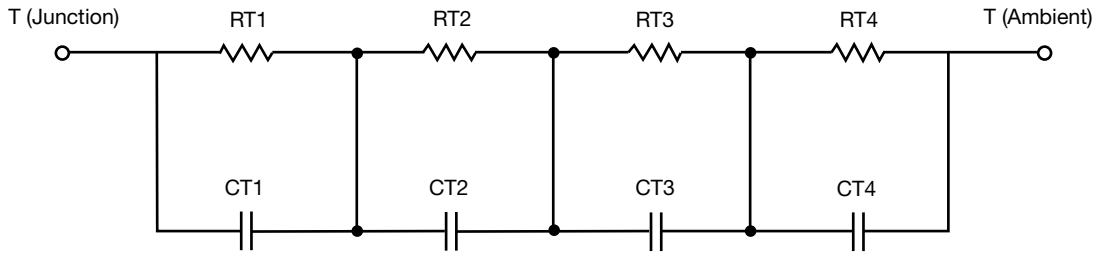
R-C Thermal Model Parameters

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 PSpice, 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 PSpice 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 PSpice Platform”.

R-C THERMAL MODEL FOR TANK CONFIGURATION



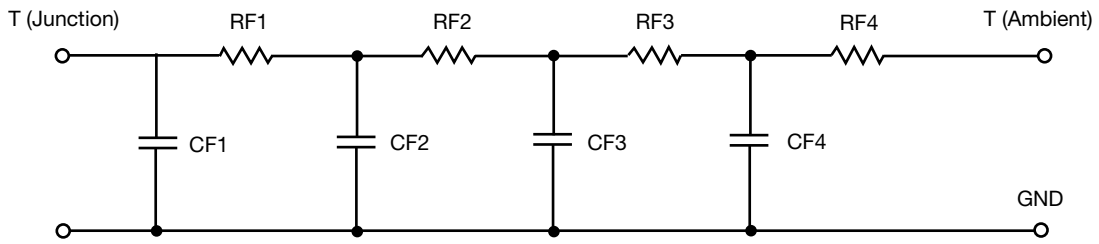
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	7.8737	578.0977m	n/a
RT2	12.0542	366.1962m	n/a
RT3	2.7785	807.4963m	n/a
RT4	27.2936	648.2098m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	155.2808m	29.2641m	n/a
CT2	3.2165	1.1732m	n/a
CT3	12.2423m	3.7536m	n/a
CT4	2.9679	249.5110m	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	2.6056	979.6938m	n/a
RF2	8.4407	856.3558m	n/a
RF3	18.4894	114.1511m	n/a
RF4	20.4643	449.7993m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	7.7218m	1.0762m	n/a
CF2	104.2054m	12.6278m	n/a
CF3	1.1287	268.7302m	n/a
CF4	1.7031	8.4874m	n/a

Note

- n/a indicates not applicable