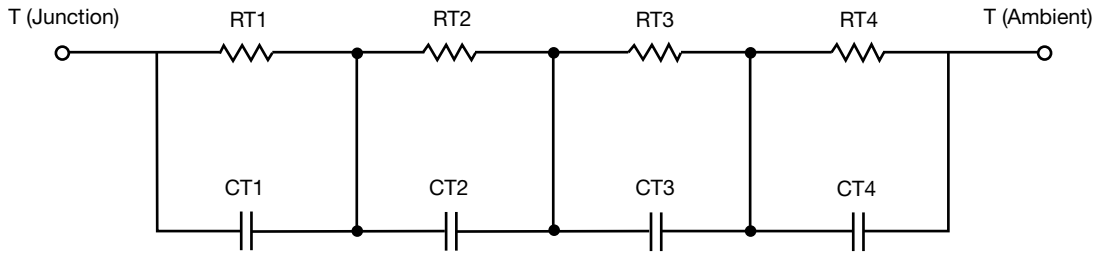
R-C Thermal Model Parameters

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



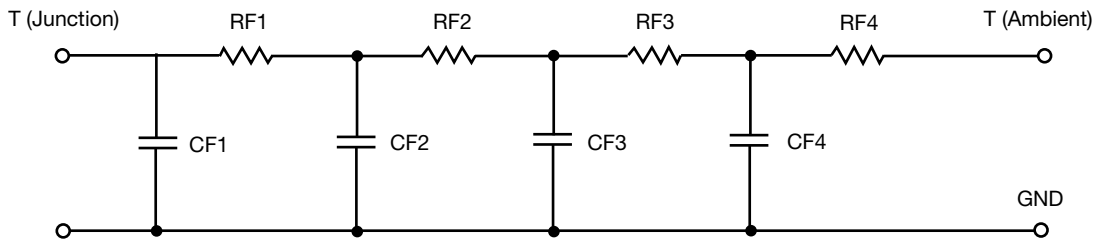
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	2.6371	624.8123m	n/a
RT2	28.3236	325.1059m	n/a
RT3	9.6657	123.6773m	n/a
RT4	14.3736	326.4045m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	4.2622m	1.6151m	n/a
CT2	3.9489	9.9895m	n/a
CT3	83.9752m	38.6260u	n/a
CT4	1.2976	262.6661u	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	2.6839	327.3698m	n/a
RF2	9.8782	435.2061m	n/a
RF3	25.3808	269.8454m	n/a
RF4	17.0571	367.5787m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	3.4279m	56.5909u	n/a
CF2	62.0769m	480.8966u	n/a
CF3	855.9878m	2.2194m	n/a
CF4	6.5545	28.7655u	n/a

Note

- n/a indicates not applicable