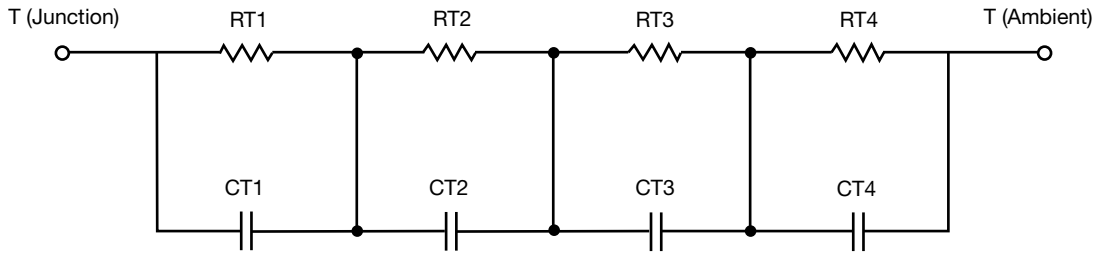
R-C Thermal Model Parameters

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



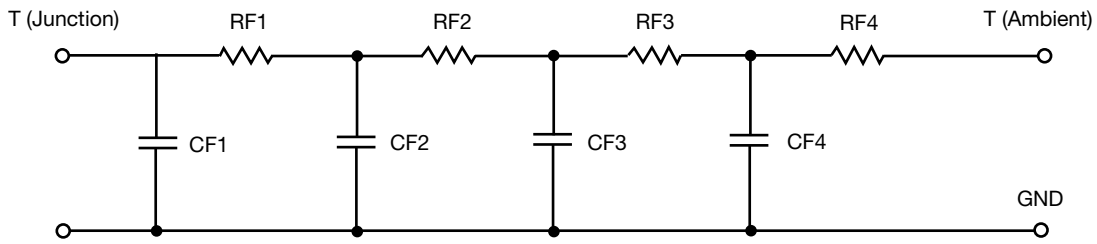
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	14.5649	153.0687m	n/a
RT2	7.6127	454.9716m	n/a
RT3	2.8222	303.3601m	n/a
RT4	29.0002	288.5996m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.4550	1.3206m	n/a
CT2	137.7393m	23.0091m	n/a
CT3	24.5815m	141.2569m	n/a
CT4	3.8996	380.4627m	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	3.9005	109.4204m	n/a
RF2	8.0121	54.6300m	n/a
RF3	23.9255	615.1664m	n/a
RF4	18.1619	420.7832m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	20.7570m	1.2602m	n/a
CF2	96.5217m	90.0431u	n/a
CF3	916.8288m	16.3638m	n/a
CF4	5.4684	150.0287m	n/a

Note

- n/a indicates not applicable