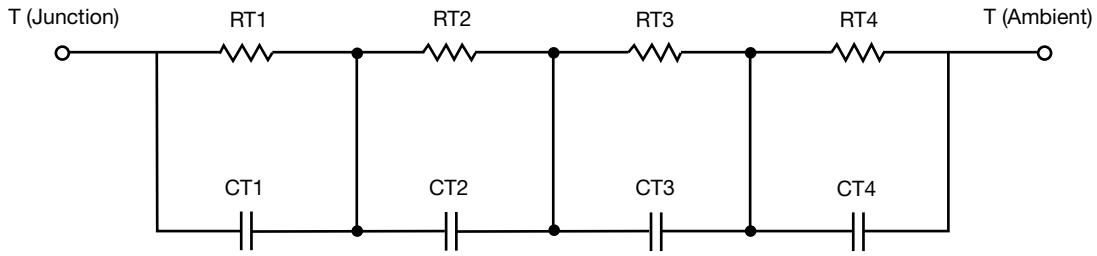
R-C Thermal Model Parameters

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



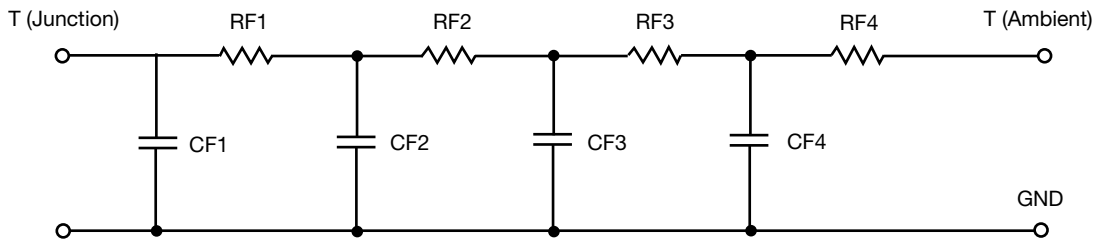
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	14.9469	260.2655m	n/a
RT2	1.5996	513.3755m	n/a
RT3	8.0530	97.0582m	n/a
RT4	29.4005	329.3008m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.2874	3.2469m	n/a
CT2	14.0885m	16.6606m	n/a
CT3	88.4533m	123.7875m	n/a
CT4	3.8425	26.3680m	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	2.6189	37.2627m	n/a
RF2	8.5816	9.4230m	n/a
RF3	24.5376	405.5868m	n/a
RF4	18.2619	747.7275m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	16.3173m	69.8102u	n/a
CF2	71.0649m	95.5697u	n/a
CF3	904.3819m	3.0972m	n/a
CF4	5.7253	6.9777m	n/a

Note

- n/a indicates not applicable