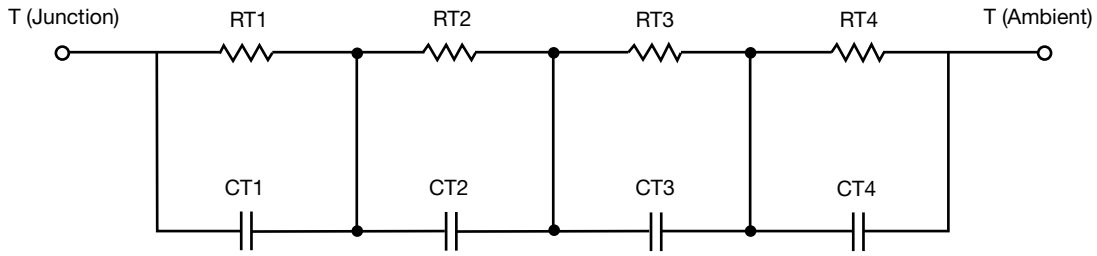
R-C Thermal Model Parameters

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



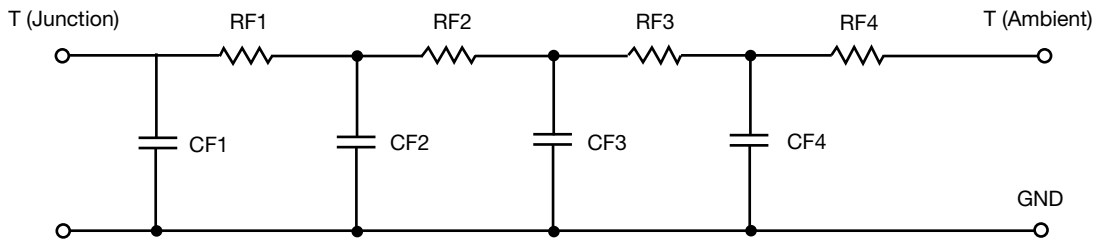
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	2.9837	5.6273m	n/a
RT2	7.6628	636.9335m	n/a
RT3	14.7079	741.3338m	n/a
RT4	24.6453	999.0767m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	13.1685m	112.8808u	n/a
CT2	164.7980m	1.1572m	n/a
CT3	6.8092	176.3753m	n/a
CT4	2.0450	7.6786m	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	3.4489	2.2989m	n/a
RF2	8.1018	719.8973m	n/a
RF3	15.6054	919.3733m	n/a
RF4	22.7777	737.7404m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	12.1830m	164.5908u	n/a
CF2	131.1560m	734.2532u	n/a
CF3	1.0907	5.2455m	n/a
CF4	1.3774	142.1484m	n/a

Note

- n/a indicates not applicable