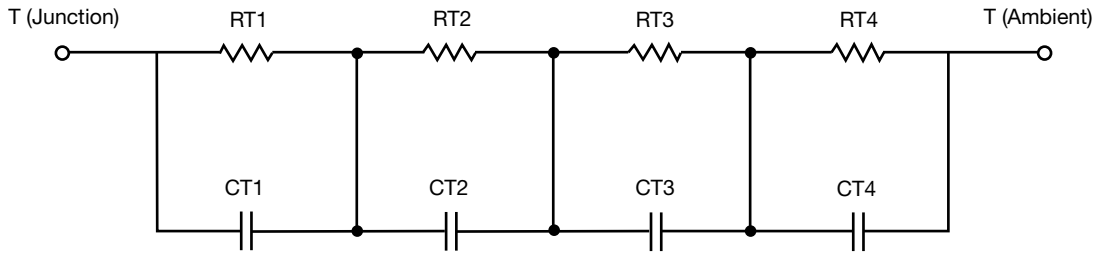
R-C Thermal Model Parameters

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



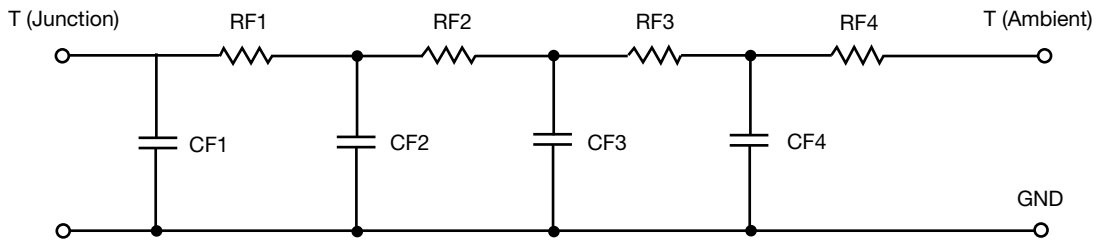
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	3.4708	121.6809m	n/a
RT2	10.2297	945.1222m	n/a
RT3	11.1776	890.9999m	n/a
RT4	45.1291	644.1858m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	15.5772m	361.8304u	n/a
CT2	100.1618m	17.4002m	n/a
CT3	1.3362	6.1276m	n/a
CT4	1.7124	27.1874m	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	4.5594	142.0009m	n/a
RF2	12.3467	941.2839m	n/a
RF3	15.1258	735.3159m	n/a
RF4	37.9681	781.3992m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	13.9070m	467.0912u	n/a
CF2	79.2339m	3.0652m	n/a
CF3	588.4456m	869.9694u	n/a
CF4	1.0675	10.9733m	n/a

Note

- n/a indicates not applicable