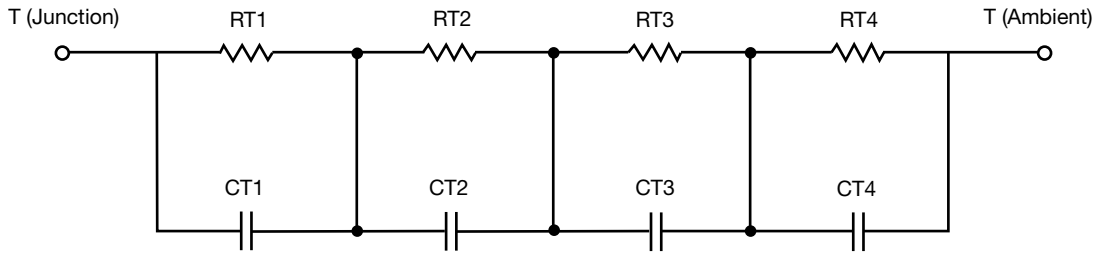
R-C Thermal Model Parameters

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



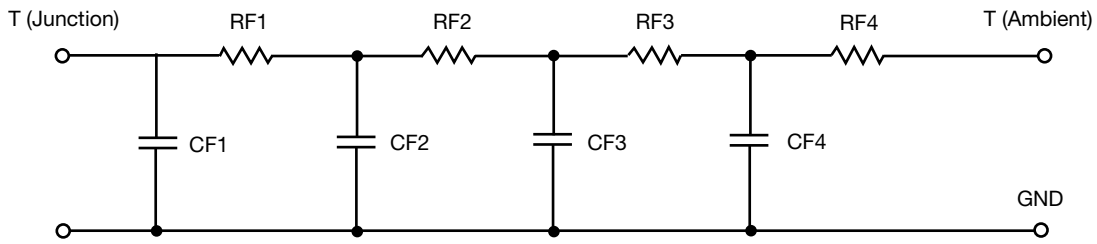
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	27.5357	131.9822m	n/a
RT2	5.7051	377.5153m	n/a
RT3	15.5673	19.1272m	n/a
RT4	2.7219	191.2215m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	4.2052	178.9022u	n/a
CT2	117.6416m	909.9489u	n/a
CT3	1.1469	205.2737m	n/a
CT4	6.5364m	6.6766m	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	3.3111	186.3658m	n/a
RF2	6.7369	253.4791m	n/a
RF3	21.6694	145.0541m	n/a
RF4	19.5474	133.6536m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	6.3995m	148.8779u	n/a
CF2	111.8065m	606.6671u	n/a
CF3	792.6881m	566.6928u	n/a
CF4	4.2846	6.5961m	n/a

Note

- n/a indicates not applicable