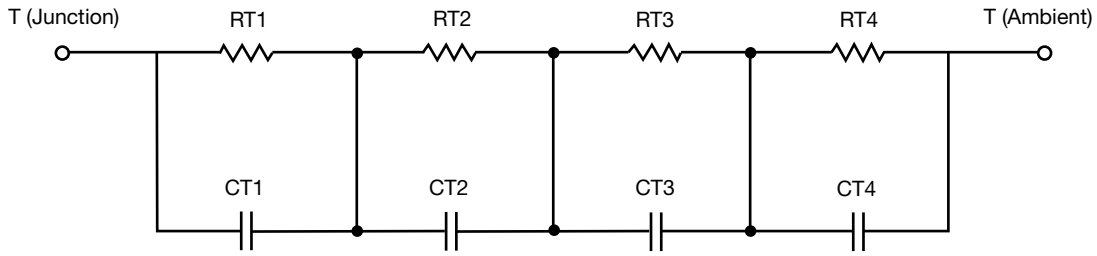
R-C Thermal Model Parameters

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



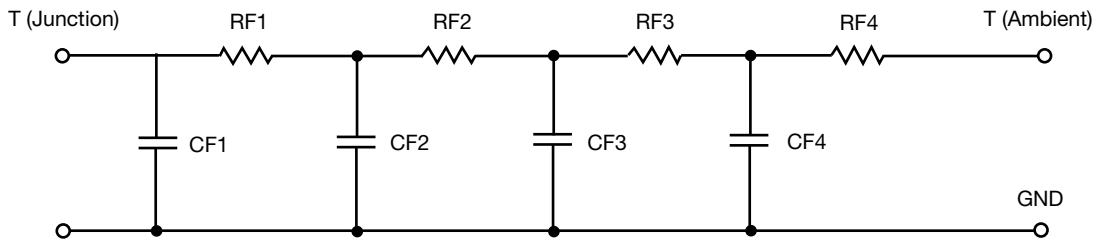
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	46.3358	672.7061m	n/a
RT2	7.6078	67.6745m	n/a
RT3	13.4981	1.9581	n/a
RT4	2.5583	1.5194m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.4094	2.0712m	n/a
CT2	18.6603m	1.8624m	n/a
CT3	196.7090m	8.0431m	n/a
CT4	1.0816m	22.9785	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	4.4011	827.6209m	n/a
RF2	12.3437	274.4202m	n/a
RF3	14.0672	614.3753m	n/a
RF4	39.1880	983.5836m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	2.1367m	1.1964m	n/a
CF2	35.4468m	4.1016m	n/a
CF3	311.7038m	430.7353u	n/a
CF4	1.3367	7.9944m	n/a

Note

- n/a indicates not applicable