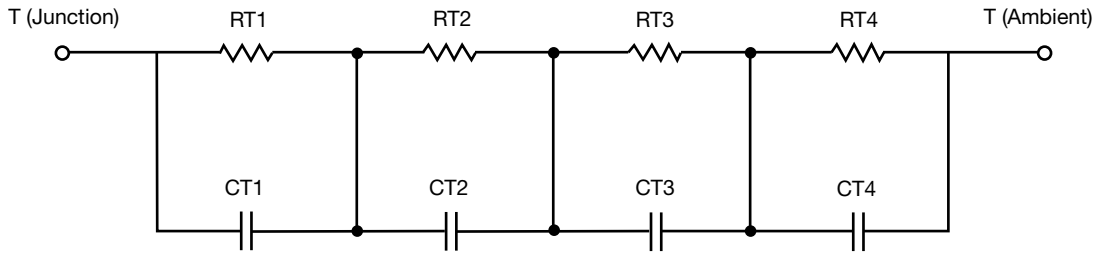
R-C Thermal Model Parameters

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



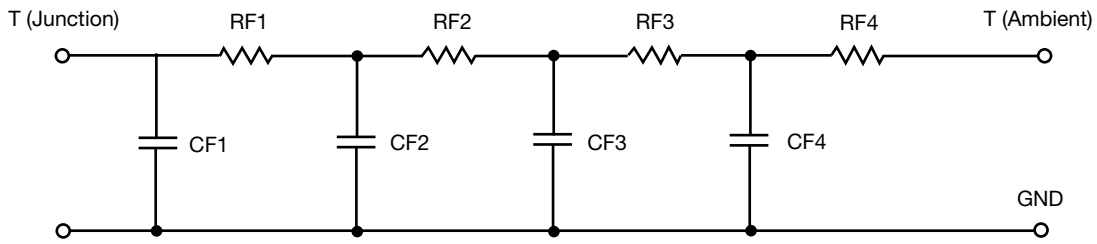
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	1.9956	86.6662m	n/a
RT2	4.7599	290.2893m	n/a
RT3	12.4560	227.8559m	n/a
RT4	30.7885	13.4640m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	5.6085m	1.6913m	n/a
CT2	159.0443m	21.4824m	n/a
CT3	1.2468	7.3991m	n/a
CT4	2.7661	3.5752u	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	2.5782	46.5801m	n/a
RF2	7.7593	242.9801m	n/a
RF3	20.2879	194.0042m	n/a
RF4	19.3746	136.4356m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	8.9727m	236.9281u	n/a
CF2	167.9438m	2.5090m	n/a
CF3	853.0478m	6.9081m	n/a
CF4	2.7068	29.8003m	n/a

Note

- n/a indicates not applicable