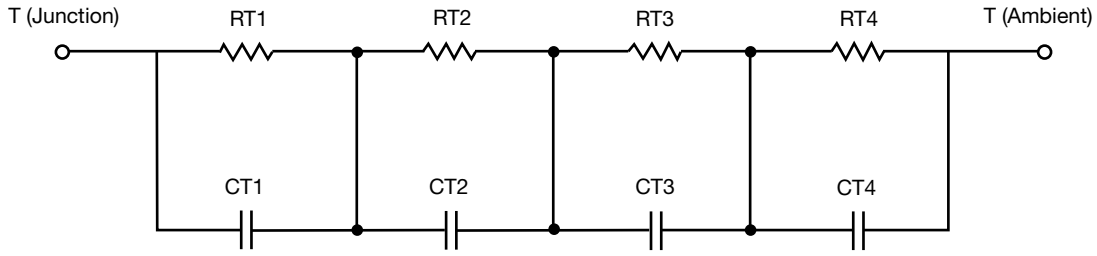
R-C Thermal Model Parameters

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 P-SPICE, 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 P-SPICE 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 P-SPICE Platform”.

R-C THERMAL MODEL FOR TANK CONFIGURATION



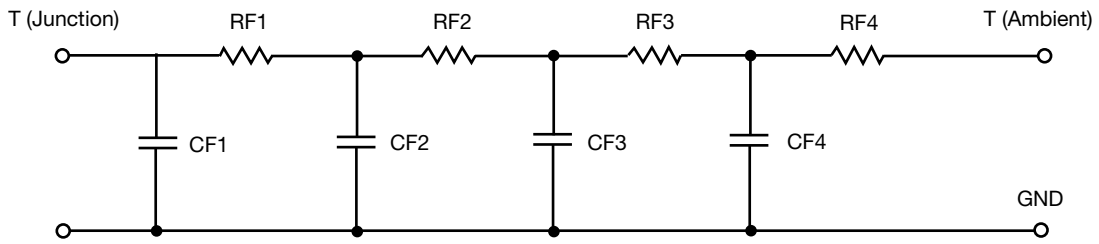
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	23.1263	638.0399m	N/A
RT2	13.7407	1.1326	N/A
RT3	6.8320	977.8384m	N/A
RT4	26.5565	1.7576	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.7175	1.0840m	N/A
CT2	107.1280m	147.5755m	N/A
CT3	5.3220m	22.9174m	N/A
CT4	3.2688	39.0449m	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	7.6677	722.0965m	N/A
RF2	16.1402	1.3083	N/A
RF3	34.0950	27.3956m	N/A
RF4	11.9544	2.4047	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	5.7147m	992.4955u	N/A
CF2	96.0050m	9.6446m	N/A
CF3	1.0976	21.2761m	N/A
CF4	1.7983	123.8394n	N/A

Note

- n/a indicates not applicable