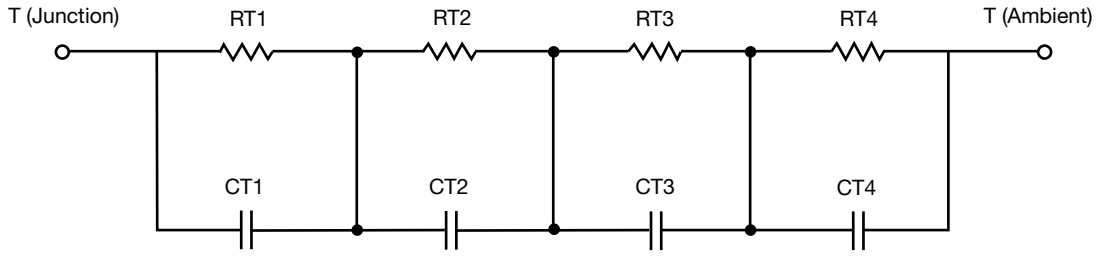
R-C Thermal Model Parameters

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



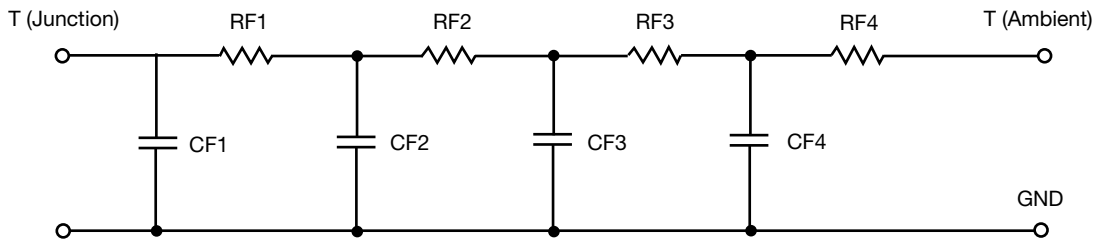
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	6.3328	2.0544	N/A
RT2	18.4728	1.3706	N/A
RT3	10.6243	317.4000m	N/A
RT4	43.5528	2.7576	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	536.3925u	1.1988m	N/A
CT2	7.8286m	194.0091u	N/A
CT3	337.5044m	34.1528m	N/A
CT4	1.7828	1.0497m	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	8.6135	2.3964	N/A
RF2	17.8689	3.9053	N/A
RF3	13.8973	175.7416m	N/A
RF4	38.5923	22.5584m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	678.0083u	148.1451u	N/A
CF2	8.8930m	482.6986u	N/A
CF3	325.9674m	115.5172m	N/A
CF4	1.6565	1.0345	N/A

Note

- n/a indicates not applicable