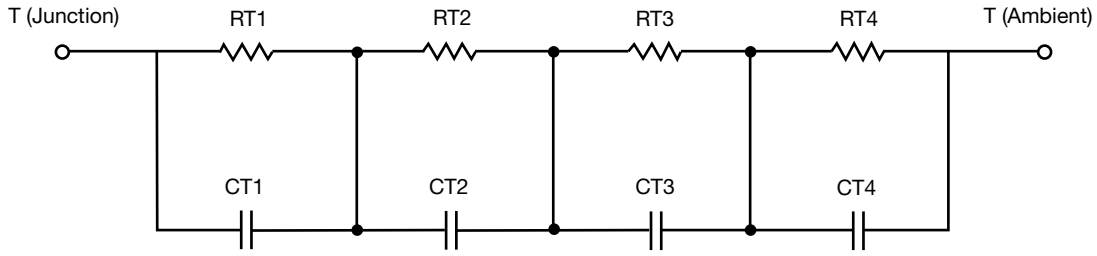
R-C Thermal Model Parameters

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



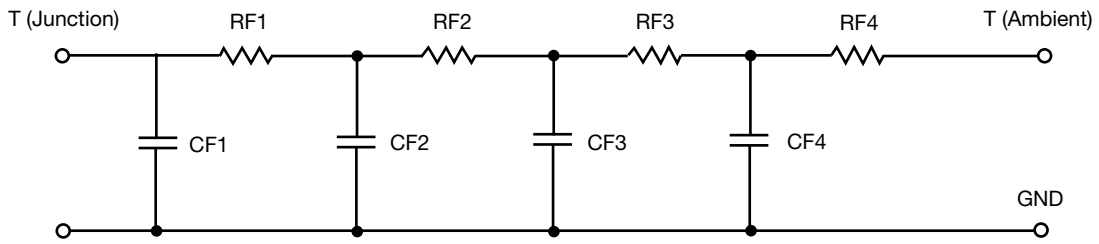
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	4.8545	1.3985	N/A
RT2	43.9033	1.3604	N/A
RT3	7.9868	1.6561	N/A
RT4	18.2554	985.0000m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	400.6743u	4.0627m	N/A
CT2	1.7332	1.8935m	N/A
CT3	15.2447m	2.6998m	N/A
CT4	169.4442m	353.3948u	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	5.4222	2.3034	N/A
RF2	11.4697	328.0000m	N/A
RF3	21.1597	2.7512	N/A
RF4	36.9484	17.4000m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	414.9199u	268.5098u	N/A
CF2	17.5162m	1.0339m	N/A
CF3	229.2156m	150.1866u	N/A
CF4	1.9272	203.0001m	N/A

Note

- n/a indicates not applicable