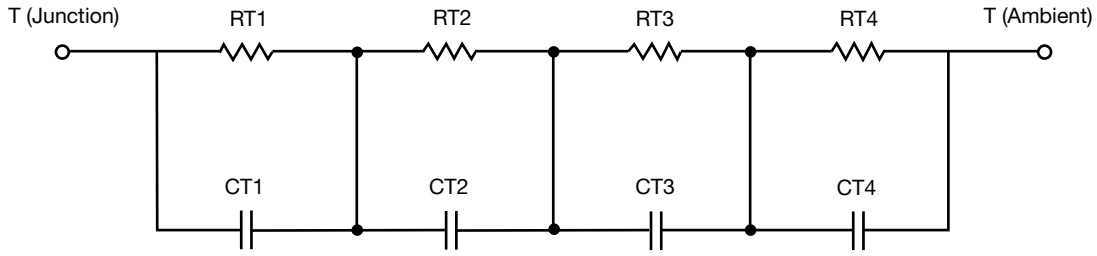
R-C Thermal Model Parameters

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



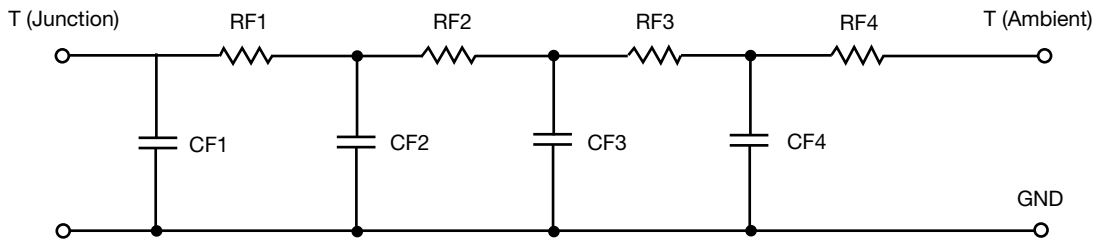
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	2.0865	1.2759	n/a
RT2	16.4791	994.2572m	n/a
RT3	11.0833	991.5930m	n/a
RT4	51.0518	538.2657m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	681.5506u	9.5085m	n/a
CT2	13.3129m	12.2616m	n/a
CT3	235.9786m	641.1220u	n/a
CT4	1.3739	49.3039m	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	9.0303	971.1821m	n/a
RF2	17.4229	1.6377	n/a
RF3	22.4466	1.1812	n/a
RF4	32.0146	187.3216u	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	3.9185m	448.1847u	n/a
CF2	29.6398m	3.0805m	n/a
CF3	711.9837m	5.9612m	n/a
CF4	1.4027	34.2073u	n/a

Note

- n/a indicates not applicable