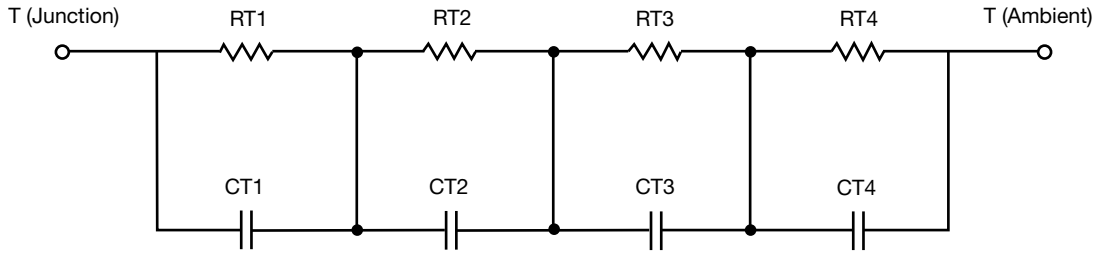
R-C Thermal Model Parameters

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



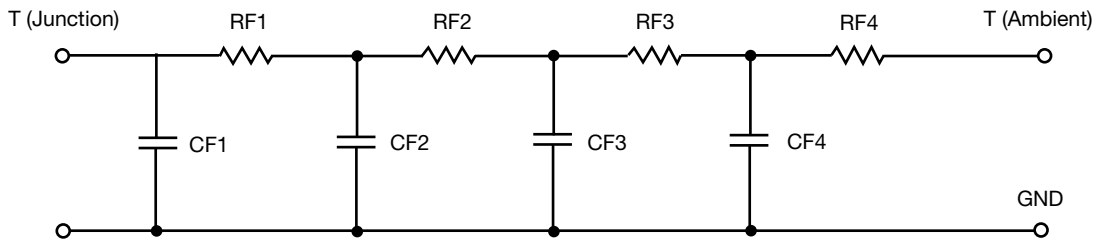
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	11.6073	1.1338	N/A
RT2	5.5097	2.2503	N/A
RT3	17.8868	307.2923m	N/A
RT4	44.9962	2.8064	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	209.1299m	158.7956u	N/A
CT2	417.0540u	1.4661m	N/A
CT3	6.6638m	14.3795m	N/A
CT4	1.7955	806.1737u	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	5.1725	2.2329	N/A
RF2	17.9817	3.6756	N/A
RF3	12.9513	473.0165m	N/A
RF4	43.8945	118.4835m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	309.7753u	146.1906u	N/A
CF2	5.0133m	405.9513u	N/A
CF3	130.8578m	6.9647m	N/A
CF4	1.6377	263.1971m	N/A

Note

- n/a indicates not applicable