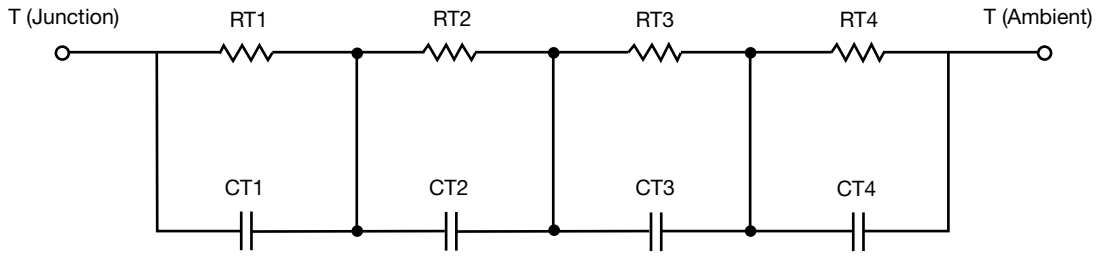
R-C Thermal Model Parameters

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 PSpice, 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 PSpice 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 PSpice Platform”.

R-C THERMAL MODEL FOR TANK CONFIGURATION



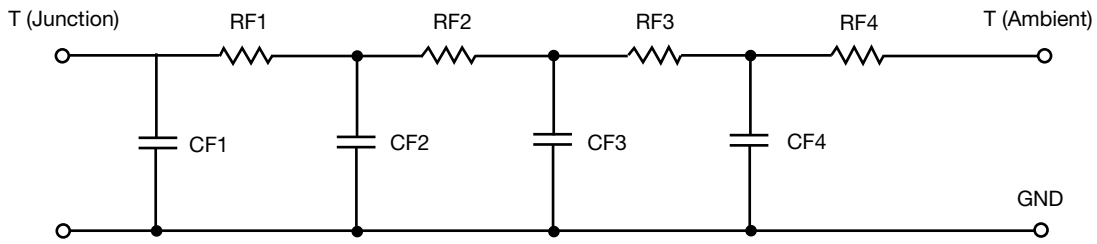
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	2.9263	917.2687m	n/a
RT2	17.2681	387.4991m	n/a
RT3	9.1761	91.2298m	n/a
RT4	38.6295	804.0024m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	10.7475m	48.3596m	n/a
CT2	665.1557m	6.5279m	n/a
CT3	79.9534m	151.4566u	n/a
CT4	2.9648	48.2011m	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	1.6928	337.0464m	n/a
RF2	10.9431	320.0625m	n/a
RF3	23.8578	592.4403m	n/a
RF4	31.5063	950.8471m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	2.6976m	2.4164m	n/a
CF2	41.0229m	3.9506m	n/a
CF3	443.7328m	17.7681m	n/a
CF4	3.1351	5.2287m	n/a

Note

- n/a indicates not applicable