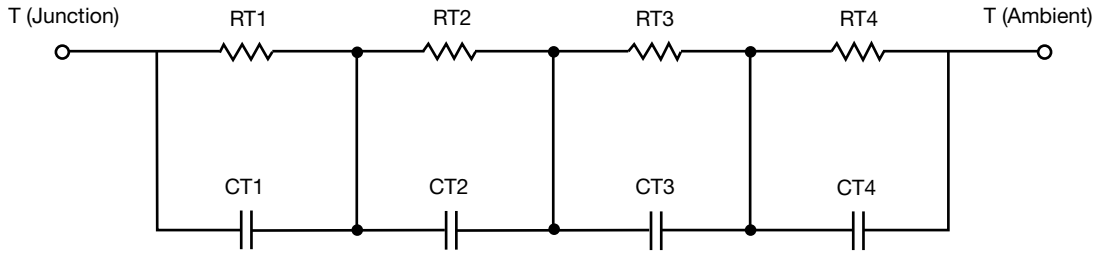
R-C Thermal Model Parameters

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



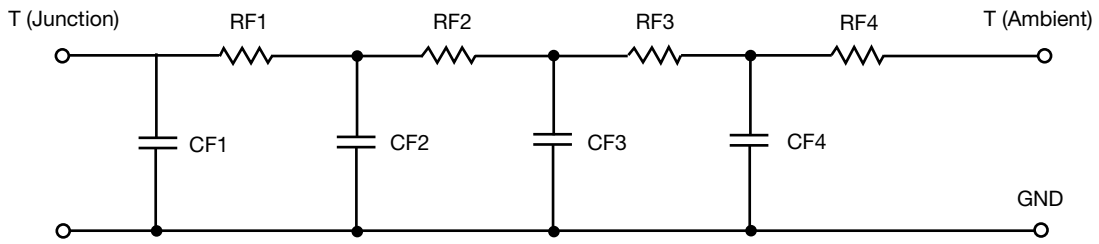
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	1.6205	73.3855m	N/A
RT2	5.5355	567.1127m	N/A
RT3	7.2372	160.8529m	N/A
RT4	35.2847	301.5485m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	2.8451m	52.0931m	N/A
CT2	43.8047m	73.2652m	N/A
CT3	420.5598m	3.7214m	N/A
CT4	1.1002	246.3847m	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	6.1657	209.4032m	N/A
RF2	9.8161	285.1320m	N/A
RF3	15.5590	540.6874m	N/A
RF4	18.1676	67.8722m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	13.5064m	3.8477m	N/A
CF2	179.5888m	28.0056m	N/A
CF3	630.1699m	51.3449m	N/A
CF4	902.6529m	9.1091m	N/A

Note

- n/a indicates not applicable