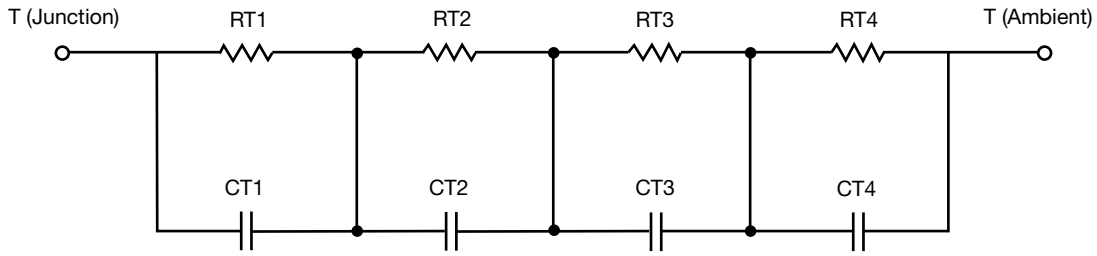
R-C Thermal Model Parameters

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



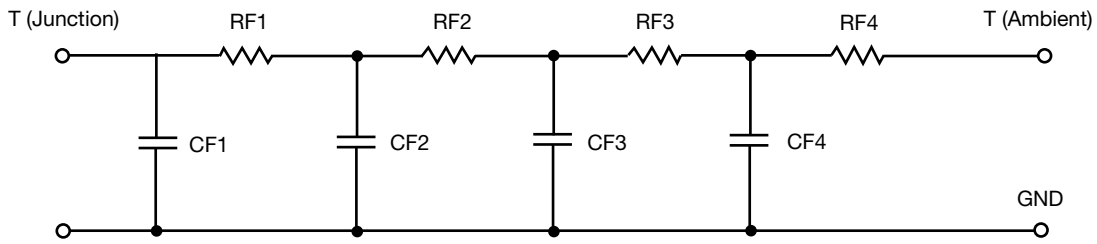
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	29.2469	536.2179m	n/a
RT2	6.2471	87.2512m	n/a
RT3	2.4622	381.6643m	n/a
RT4	17.0439	91.0255m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	3.8150	2.2023m	n/a
CT2	136.3894m	1.7393m	n/a
CT3	5.4642m	817.1193u	n/a
CT4	1.1133	44.1887u	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	2.8000	246.7815m	n/a
RF2	7.5752	490.1178m	n/a
RF3	23.5242	348.8285m	n/a
RF4	21.1006	20.7423m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	5.1903m	139.1894u	n/a
CF2	102.2162m	463.7569u	n/a
CF3	706.9166m	1.7146m	n/a
CF4	3.6030	531.7950m	n/a

Note

- n/a indicates not applicable