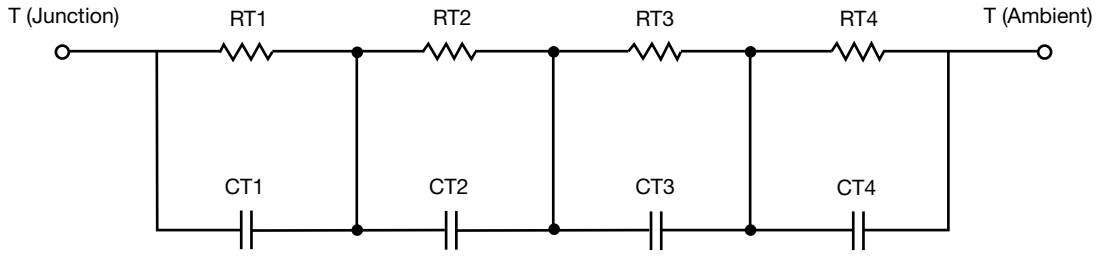
R-C Thermal Model Parameters

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



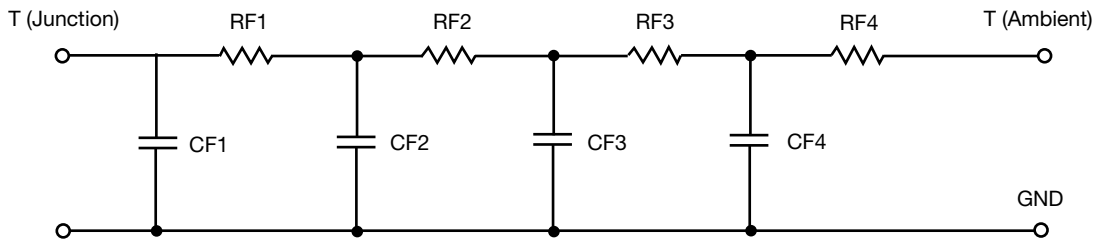
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	1.7173	396.2903m	N/A
RT2	8.8740	486.4908m	N/A
RT3	10.0851	394.0882m	N/A
RT4	44.3030	722.8856m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	7.8690m	36.3441m	N/A
CT2	52.3636m	2.0761m	N/A
CT3	633.9978m	52.1304m	N/A
CT4	1.6237	17.6023m	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	3.8277	617.4012m	N/A
RF2	9.7982	685.9573m	N/A
RF3	20.9773	649.3029m	N/A
RF4	30.4608	46.2700m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	11.2536m	1.6566m	N/A
CF2	51.9642m	5.9987m	N/A
CF3	565.1390m	10.5442m	N/A
CF4	1.6395	3.8210m	N/A

Note

- n/a indicates not applicable