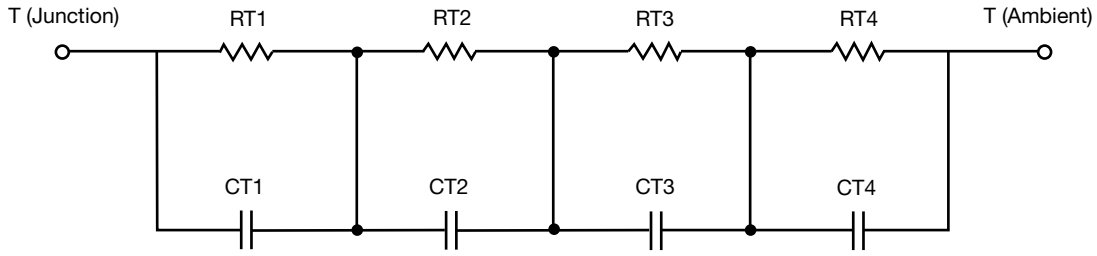
R-C Thermal Model Parameters

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



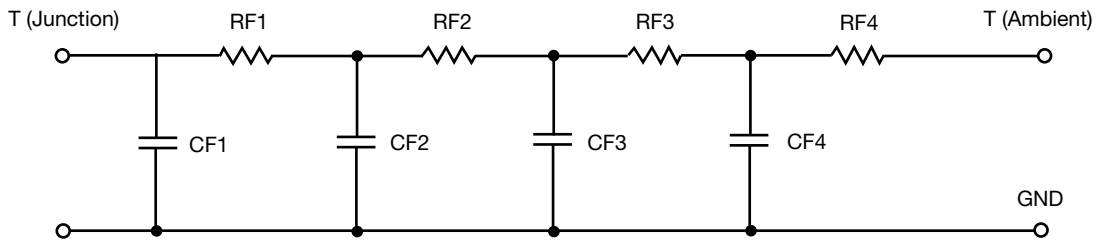
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	4.4761	789.9506m	N/A
RT2	13.0402	8.7043m	N/A
RT3	12.1747	3.3390	N/A
RT4	50.9832	362.7307m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	3.7899m	419.3740u	N/A
CT2	20.3468m	189.8180	N/A
CT3	183.0952m	3.0264m	N/A
CT4	1.2290	114.5934m	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	2.9661	1.4011	N/A
RF2	20.3554	1.7489	N/A
RF3	21.5581	1.2189	N/A
RF4	36.4589	131.1000m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	180.2962u	468.4146u	N/A
CF2	15.8244m	3.3748m	N/A
CF3	438.3513m	1.5716m	N/A
CF4	1.4190	528.8642m	N/A

Note

- n/a indicates not applicable