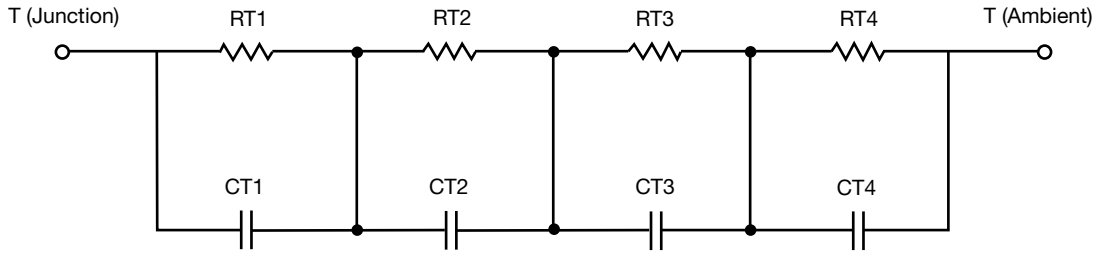
R-C Thermal Model Parameters

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



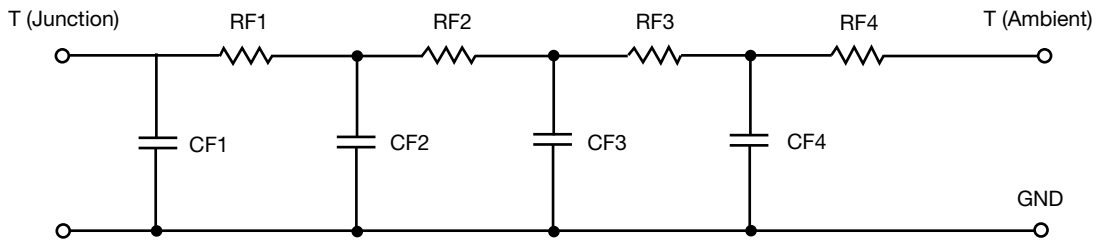
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	8.9802	N/A	10.8671
RT2	29.7827	N/A	13.1302
RT3	15.0337	N/A	3.1392
RT4	56.0354	N/A	2.9047
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.1880m	N/A	20.8416m
CT2	7.6929m	N/A	3.6303m
CT3	89.1056m	N/A	580.2555u
CT4	1.3829	N/A	39.2604m

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	13.2254	N/A	4.1176
RF2	33.7640	N/A	14.7784
RF3	11.9612	N/A	10.2531
RF4	50.9269	N/A	876.2661m
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	1.1541m	N/A	528.7047u
CF2	7.1005m	N/A	2.0435m
CF3	260.7491m	N/A	10.4223m
CF4	1.2448	N/A	244.8138m

Note

- n/a indicates not applicable