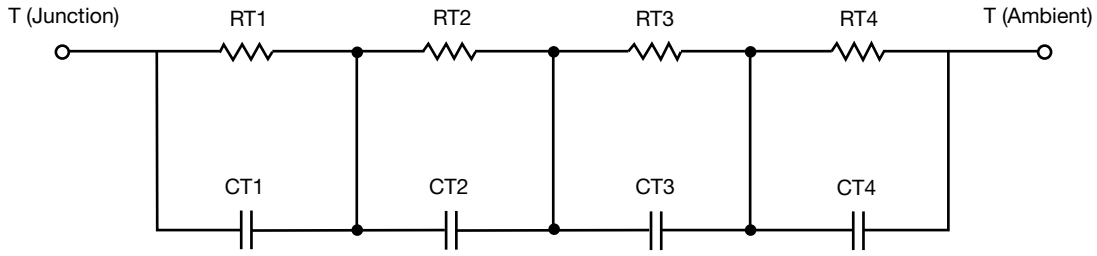
R-C Thermal Model Parameters

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



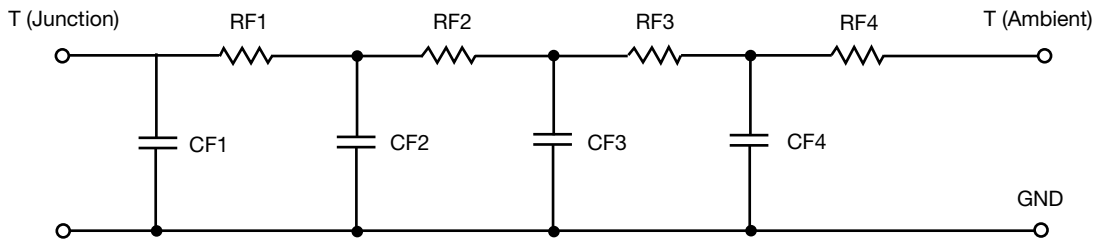
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	11.2725	1.2297	N/A
RT2	3.8611	384.9000m	N/A
RT3	9.6289	1.4275	N/A
RT4	59.9918	1.2579	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	184.4947m	900.6096u	N/A
CT2	2.8630m	18.4911	N/A
CT3	23.9357m	2.7492m	N/A
CT4	1.0202	30.0830m	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	5.3418	723.8823m	N/A
RF2	14.1943	1.7902	N/A
RF3	15.3222	1.3244	N/A
RF4	49.9673	461.5177m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	2.3952m	713.5454u	N/A
CF2	25.9919m	34.6133u	N/A
CF3	328.3252m	18.5351m	N/A
CF4	869.8815m	10.7999	N/A

Note

- n/a indicates not applicable