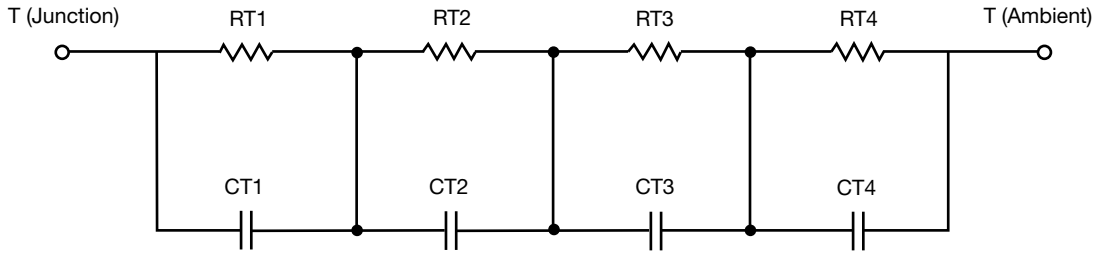
R-C Thermal Model Parameters

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

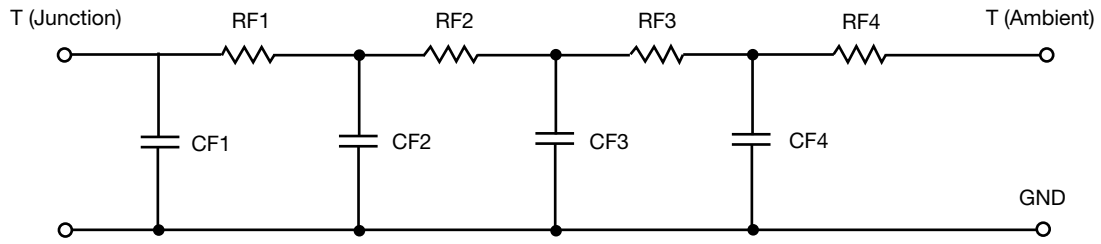


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	7.6294	N/A	10.9718
RT2	25.7297	N/A	4.7920
RT3	10.3558	N/A	11.0547
RT4	55.8375	N/A	13.1815
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	2.9666m	N/A	167.1437m
CT2	20.0077m	N/A	1.0859m
CT3	262.8903m	N/A	43.3345m
CT4	1.1542	N/A	9.8902m

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	10.3244	N/A	3.7160
RF2	30.9198	N/A	19.8134
RF3	35.2694	N/A	8.2636
RF4	23.3837	N/A	7.9692
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	2.3009m	N/A	474.3596u
CF2	19.2528m	N/A	5.3287m
CF3	757.9622m	N/A	56.6833m
CF4	1.8834	N/A	13.7407u

Note
N/A indicates not applicable