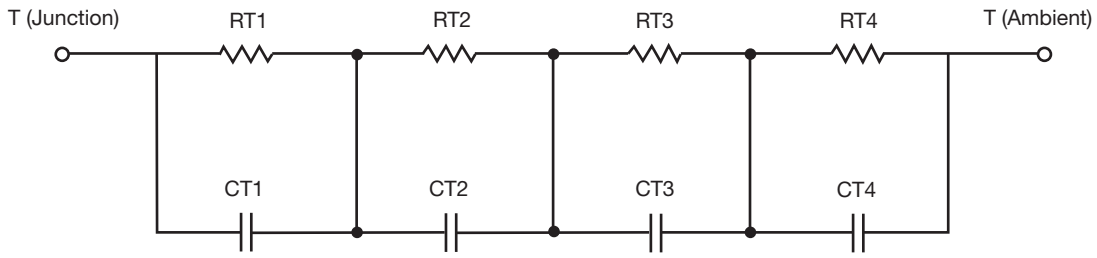
R-C Thermal Model Parameters

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

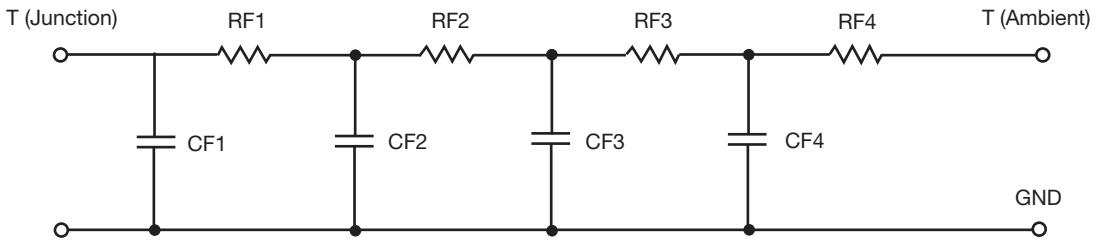


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	7.9344	N/A	2.9602
RT2	27.8340	N/A	5.3180
RT3	24.8157	N/A	19.0071
RT4	48.2679	N/A	17.3228
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	406.6791u	N/A	10.5814m
CT2	7.6495m	N/A	175.7160u
CT3	111.6963m	N/A	46.3549m
CT4	1.6458	N/A	4.7324m

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	13.5609	N/A	6.1504
RF2	34.5662	N/A	18.0478
RF3	31.4700	N/A	4.4221
RF4	30.2317	N/A	15.9851
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	758.8261u	N/A	181.1996u
CF2	11.5756m	N/A	3.1195m
CF3	394.1854m	N/A	1.1671m
CF4	3.3262	N/A	49.6802m

Note
N/A indicates not applicable