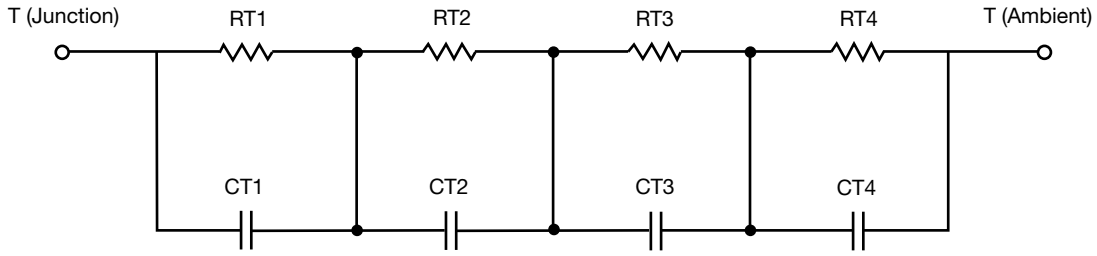
R-C Thermal Model Parameters

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

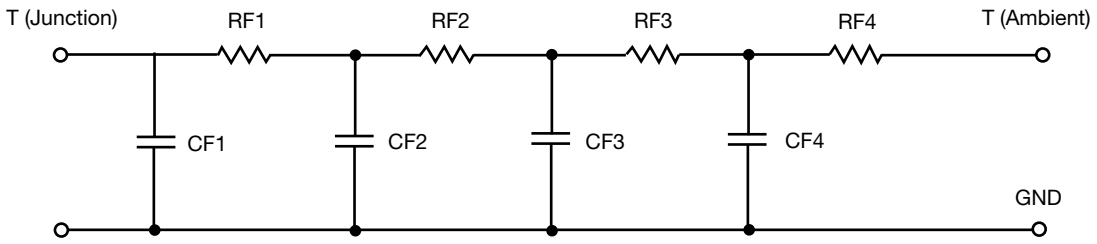


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	11.5767	N/A	12.2060
RT2	34.1425	N/A	18.0576
RT3	22.9222	N/A	6.9157
RT4	55.7439	N/A	7.8037
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	242.0025u	N/A	3.2161m
CT2	3.0302m	N/A	2.2699m
CT3	47.6883m	N/A	161.3147u
CT4	1.2627	N/A	96.7941m

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	16.5036	N/A	9.7719
RF2	39.0903	N/A	25.4959
RF3	19.9126	N/A	5.6715
RF4	49.2145	N/A	4.1563
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	309.0924u	N/A	175.8926u
CF2	3.4833m	N/A	1.2315m
CF3	140.1454m	N/A	12.2564m
CF4	1.4407	N/A	321.0420m

Note
N/A indicates not applicable