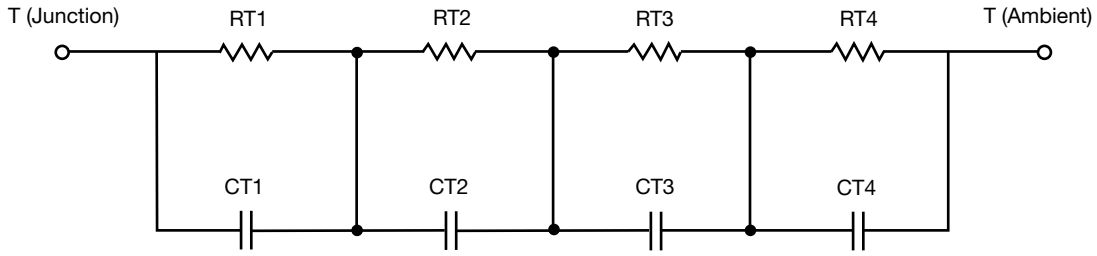
R-C Thermal Model Parameters

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

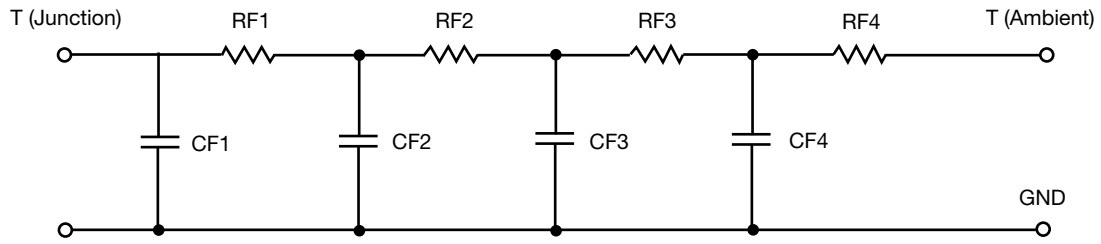


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	8.0806	N/A	4.7548
RT2	10.9069	N/A	5.0081
RT3	14.5688	N/A	9.9292
RT4	51.1169	N/A	1.2813
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	11.9747m	N/A	60.2407m
CT2	103.3101m	N/A	16.7352m
CT3	156.2502m	N/A	162.1585m
CT4	1.5756	N/A	1.7428m

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	11.2150	N/A	1.7885
RF2	22.3397	N/A	8.0863
RF3	22.5610	N/A	4.7994
RF4	28.8291	N/A	6.2989
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	10.1742m	N/A	1.5128m
CF2	53.1136m	N/A	11.5628m
CF3	1.0460	N/A	57.0894m
CF4	1.3917	N/A	127.6457m

Note
N/A indicates not applicable