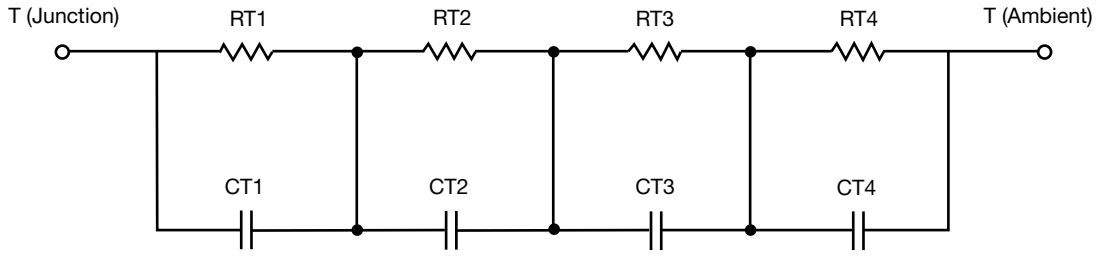
R-C Thermal Model Parameters

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



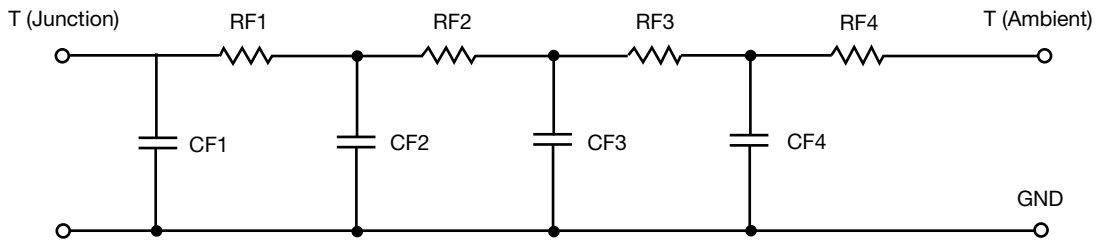
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	36.8311	N/A	8.8037
RT2	69.7358	N/A	31.3297
RT3	31.4884	N/A	30.6054
RT4	36.9447	N/A	3.7610
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.2563m	N/A	69.5195u
CT2	1.1951	N/A	4.0272m
CT3	11.4631m	N/A	744.4137u
CT4	28.2690m	N/A	1.3626m

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	26.6260	N/A	12.9146
RF2	61.4634	N/A	40.7544
RF3	23.8469	N/A	16.2141
RF4	61.5220	N/A	5.1169
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	711.0289u	N/A	68.4623u
CF2	3.5840m	N/A	505.5310u
CF3	97.7849m	N/A	5.1058m
CF4	1.2788	N/A	27.9983m

Note

- n/a indicates not applicable