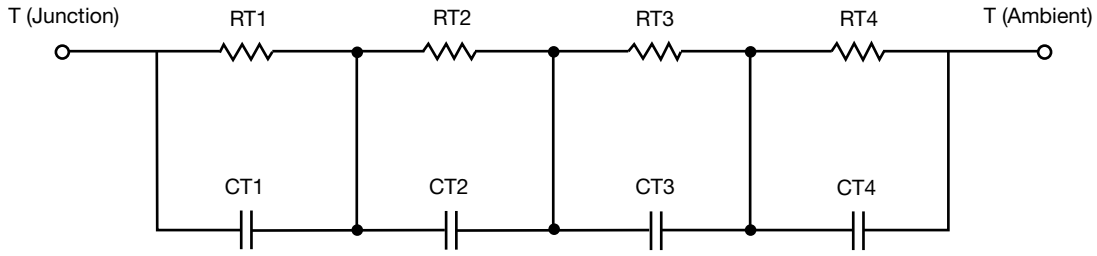
R-C Thermal Model Parameters

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



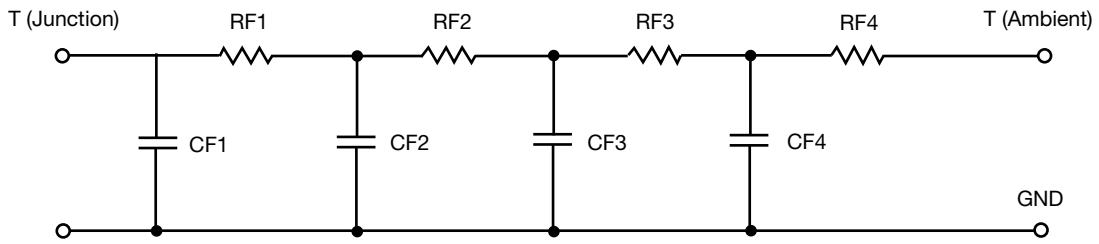
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	35.3745	65.3540m	N/A
RT2	6.9966	610.5389m	N/A
RT3	5.5619	147.5420m	N/A
RT4	1.7008	280.2809m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.0885	41.4871m	N/A
CT2	433.6533m	65.6159m	N/A
CT3	46.2798m	3.6676m	N/A
CT4	3.5061m	273.9256m	N/A

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	1.6091	263.5643m	N/A
RF2	7.5026	703.1287m	N/A
RF3	13.3430	121.1892m	N/A
RF4	27.2454	12.1428m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	1.8076m	4.4303m	N/A
CF2	36.6340m	54.4728m	N/A
CF3	342.6837m	25.8526m	N/A
CF4	991.6539m	82.1364m	N/A

Note

- n/a indicates not applicable