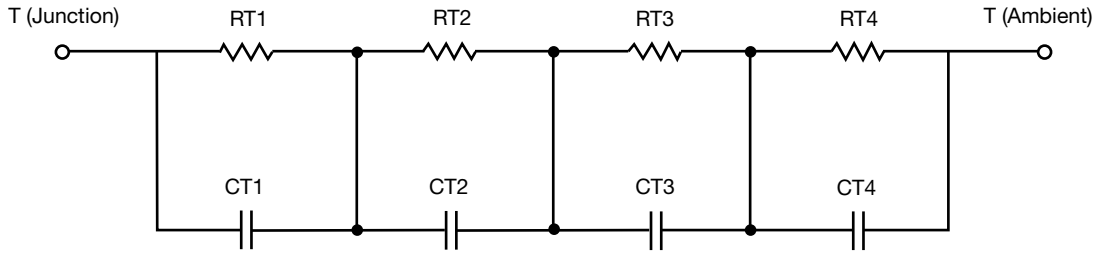
R-C Thermal Model Parameters

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



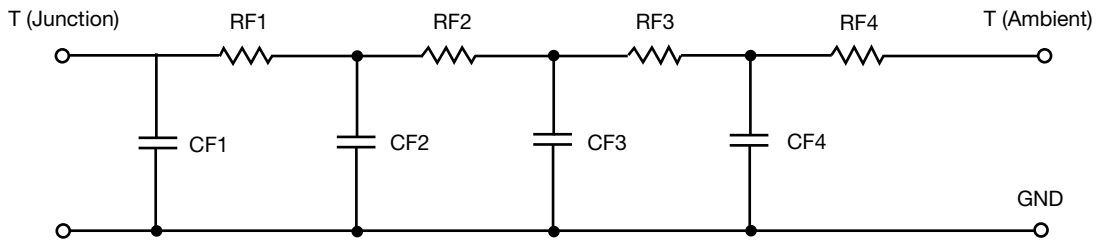
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	3.8332	754.9245m	N/A
RT2	15.8376	1.1215	N/A
RT3	10.7746	734.5724m	N/A
RT4	50.2898	1.2096	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	2.9538m	579.1231u	N/A
CT2	18.5226m	6.3112m	N/A
CT3	300.8157m	37.3900m	N/A
CT4	1.2789	10.4435m	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	6.9534	1.0727	N/A
RF2	17.8441	1.3630	N/A
RF3	20.8092	1.3522	N/A
RF4	35.3267	13.6851m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	3.2359m	461.0841u	N/A
CF2	21.3466m	3.5407m	N/A
CF3	507.4110m	3.0206m	N/A
CF4	1.2968	1.1030m	N/A

Note

- n/a indicates not applicable