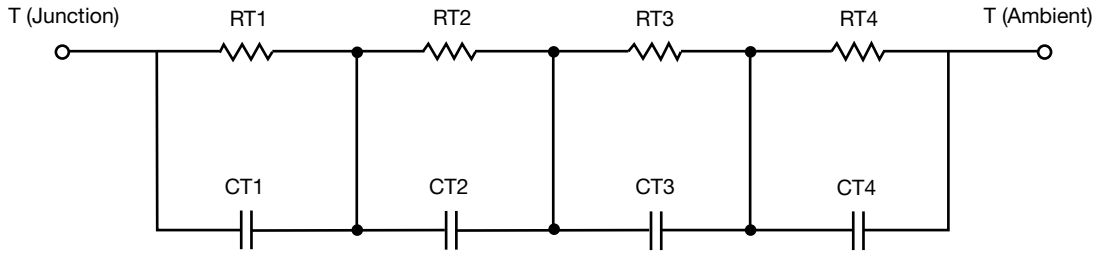
R-C Thermal Model Parameters

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



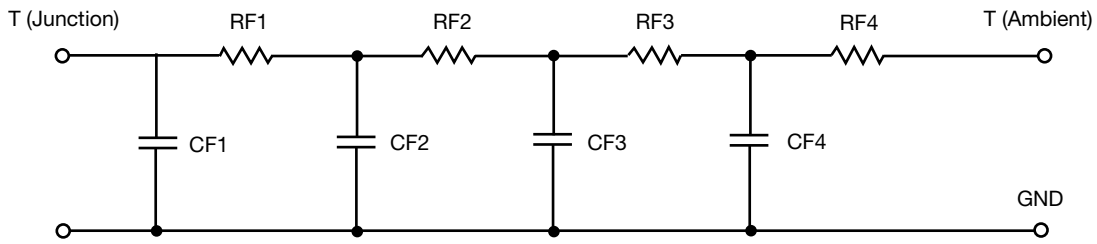
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	8.8204	436.6284m	N/A
RT2	4.4412	1.1334	N/A
RT3	17.0954	165.6390m	N/A
RT4	50.4672	666.5370m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	2.0263	902.1337u	N/A
CT2	4.3637m	14.5021m	N/A
CT3	32.0256m	121.3328m	N/A
CT4	1.5230	8.0249m	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	3.6468	768.0125m	N/A
RF2	16.0403	1.0417	N/A
RF3	13.9259	268.9585m	N/A
RF4	47.1090	323.4917m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	2.5026m	975.9905u	N/A
CF2	18.9517m	6.2453m	N/A
CF3	392.5502m	2.6403m	N/A
CF4	1.0580	17.1898m	N/A

Note

- n/a indicates not applicable