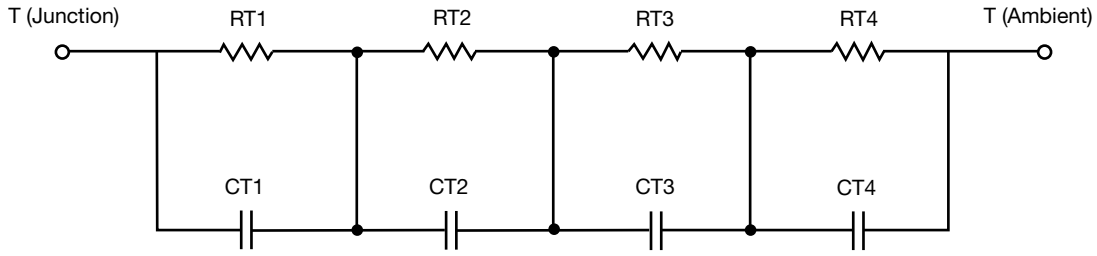
R-C Thermal Model Parameters

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 PSpice, 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 PSpice 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 PSpice Platform”.

R-C THERMAL MODEL FOR TANK CONFIGURATION



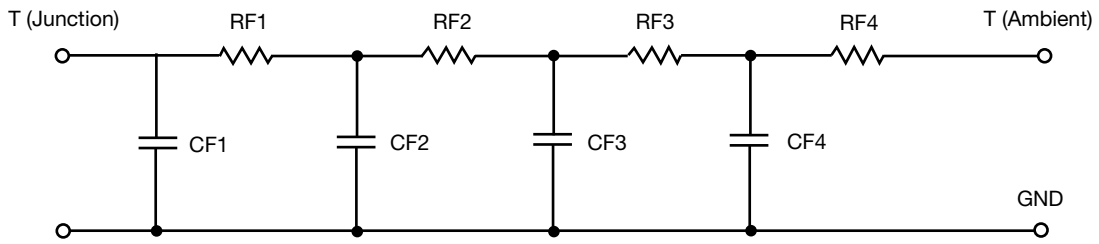
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	35.9716	279.4423m	N/A
RT2	7.2449	449.2010m	N/A
RT3	4.9874	212.7033m	N/A
RT4	1.4159	155.3504m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.0655	2.1685m	N/A
CT2	323.0704m	48.0465m	N/A
CT3	145.9399m	208.3909m	N/A
CT4	1.1926m	242.7566m	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	1.5776	357.3398m	N/A
RF2	8.0042	626.4041m	N/A
RF3	9.2398	105.3506m	N/A
RF4	30.8349	8.9638m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	2.3439m	2.4162m	N/A
CF2	84.3681m	39.0432m	N/A
CF3	164.9947m	36.6730m	N/A
CF4	988.5109m	817.6098m	N/A

Note

- n/a indicates not applicable