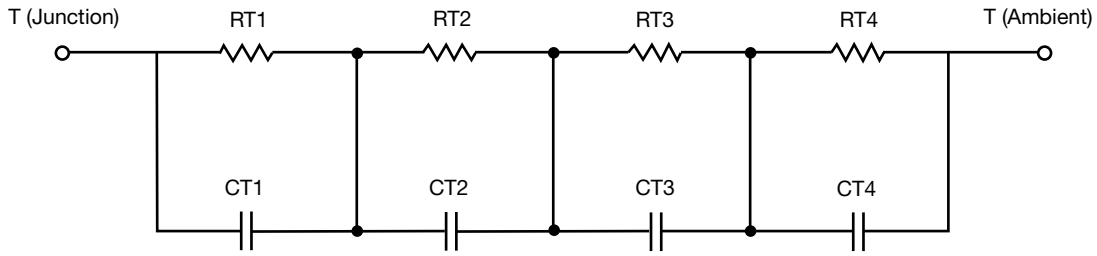
R-C Thermal Model Parameters

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



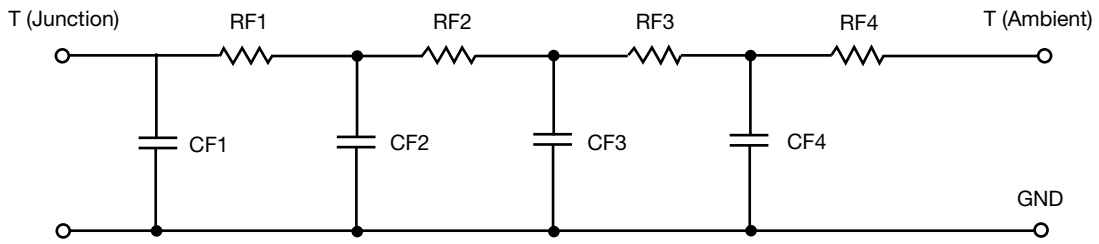
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	5.7855	768.4325m	n/a
RT2	12.6586	1.0856	n/a
RT3	14.9450	144.9825m	n/a
RT4	36.6109	200.9850m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	4.2869m	42.7857m	n/a
CT2	3.5936	109.6093m	n/a
CT3	82.3096m	5.5710m	n/a
CT4	1.8205	4.0239m	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	5.5280	392.8885m	n/a
RF2	14.2524	906.5766m	n/a
RF3	14.9226	365.6402m	n/a
RF4	35.2970	534.8947m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	3.5904m	2.2965m	n/a
CF2	61.2763m	28.0628m	n/a
CF3	541.2067m	120.8837u	n/a
CF4	1.1123	189.5758m	n/a

Note

- n/a indicates not applicable