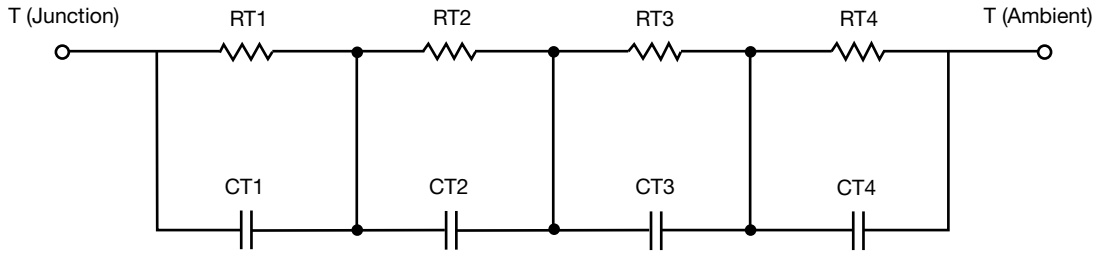
R-C Thermal Model Parameters

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



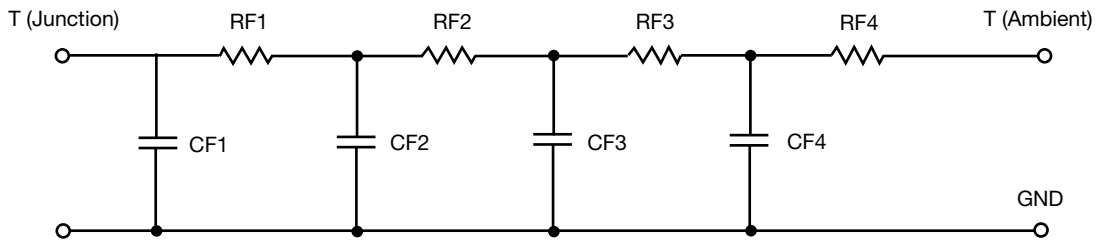
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	3.8521	1.0588	N/A
RT2	11.4052	3.0857	N/A
RT3	15.4021	1.3985	N/A
RT4	38.8344	1.6570	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	744.0605u	13.9483m	N/A
CT2	37.9141m	1.6233m	N/A
CT3	572.7275m	163.0196u	N/A
CT4	2.4106	14.8203m	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	4.5882	1.5869	N/A
RF2	12.8445	2.0951	N/A
RF3	21.0230	1.0619	N/A
RF4	31.0025	2.4561	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	1.2089m	141.8260u	N/A
CF2	38.2774m	757.6570u	N/A
CF3	460.3576m	1.5465m	N/A
CF4	2.4094	2.0644m	N/A

Note

- n/a indicates not applicable