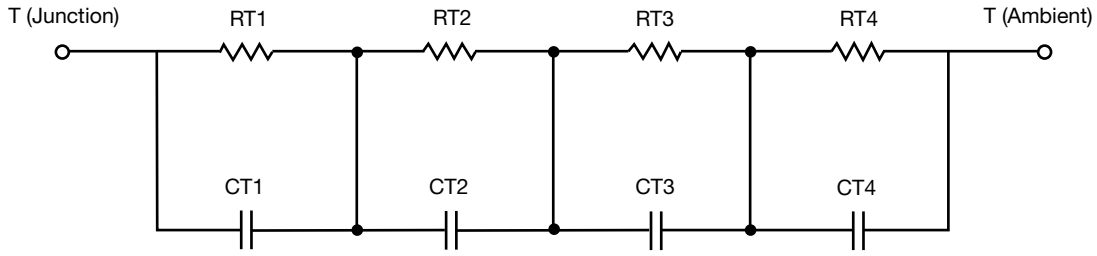
R-C Thermal Model Parameters

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



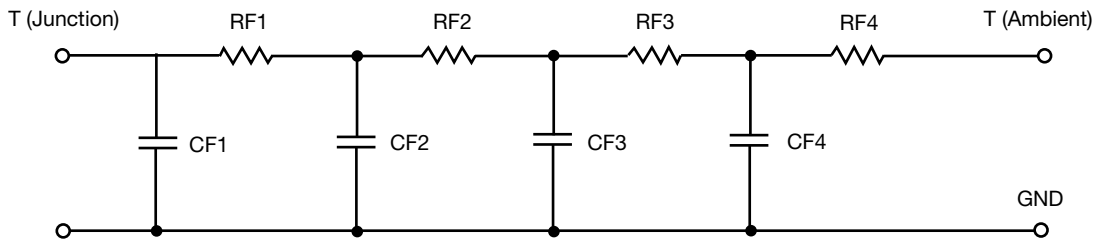
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	553.6741m	106.0818m	N/A
RT2	38.4149	708.5690m	N/A
RT3	2.6907	874.0731m	N/A
RT4	8.1056	399.8248m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.2646m	1.7969m	N/A
CT2	1.7291	155.2716m	N/A
CT3	12.5140m	2.1781m	N/A
CT4	195.5585m	33.7517m	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	3.9519	582.7187m	N/A
RF2	8.2312	908.5922m	N/A
RF3	16.7636	600.4808m	N/A
RF4	20.9712	1.2080m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	14.3927m	927.1714u	N/A
CF2	159.2384m	6.0672m	N/A
CF3	1.1690	215.6690m	N/A
CF4	1.3615	3.1217u	N/A

Note

- n/a indicates not applicable