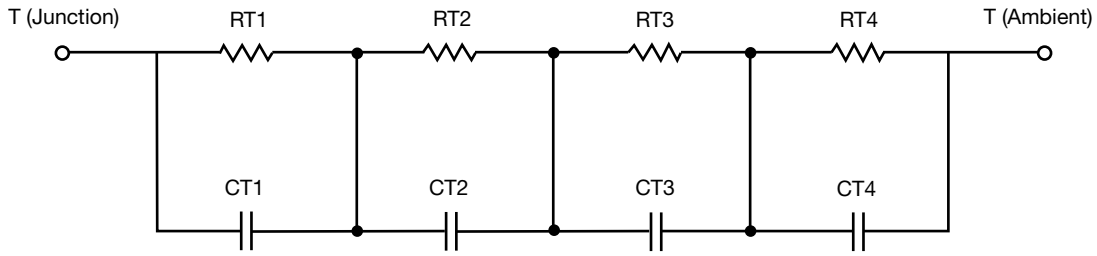
R-C Thermal Model Parameters

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



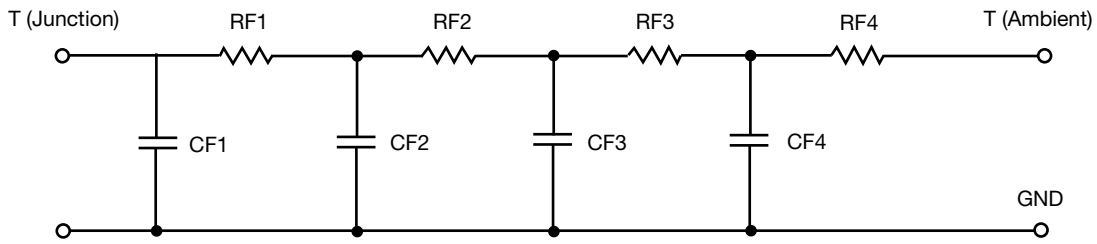
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	24.8833	403.0732m	n/a
RT2	6.1848	45.5377m	n/a
RT3	3.6350	332.2344m	n/a
RT4	19.9666	16.1734m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	4.5855	3.8402m	n/a
CT2	232.7068m	12.2379u	n/a
CT3	15.3143m	672.3715u	n/a
CT4	1.2515	16.5716m	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	3.8627	158.2339m	n/a
RF2	8.2431	363.3910m	n/a
RF3	24.5906	231.9517m	n/a
RF4	17.6834	46.2541m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	11.7447m	214.5844u	n/a
CF2	156.8870m	534.4590u	n/a
CF3	780.3458m	3.3596m	n/a
CF4	4.2158	87.0669m	n/a

Note

- n/a indicates not applicable