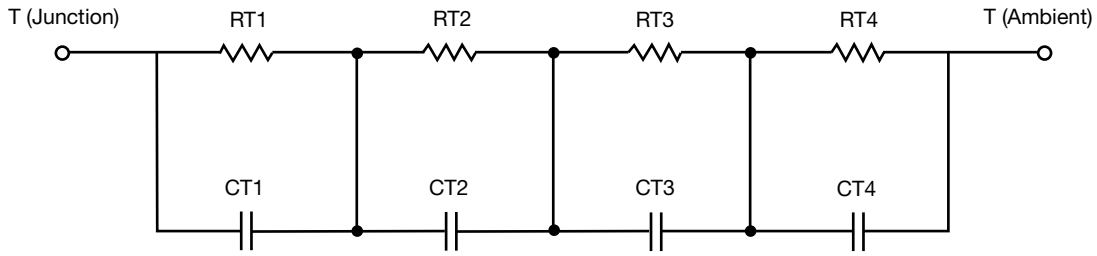
R-C Thermal Model Parameters

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



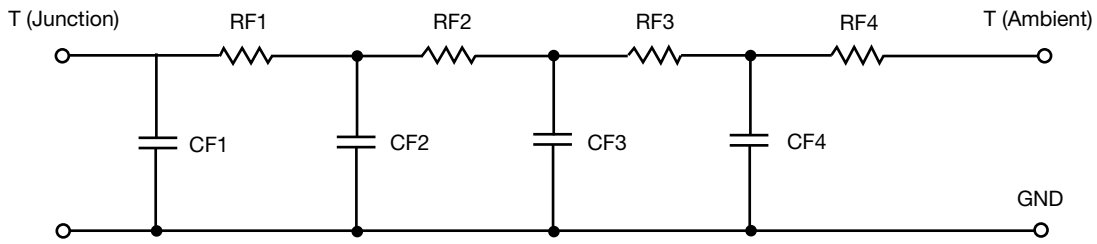
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	5.7450	373.1263m	n/a
RT2	12.9065	238.1695m	n/a
RT3	13.8396	77.2360m	n/a
RT4	37.5089	1.2115	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	3.4981m	1.2286m	n/a
CT2	1.9918	119.4977m	n/a
CT3	84.3528m	38.6417u	n/a
CT4	2.0034	4.4791m	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	5.0229	308.8878m	n/a
RF2	13.8391	886.9713m	n/a
RF3	13.2889	281.8105m	n/a
RF4	37.8491	422.3304m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	3.4728m	413.6911u	n/a
CF2	53.4678m	1.7107m	n/a
CF3	467.9516m	11.9099m	n/a
CF4	1.1135	88.9175u	n/a

Note

- n/a indicates not applicable