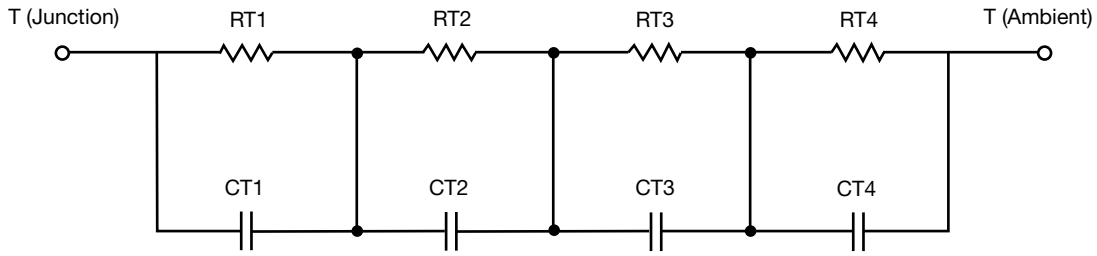
R-C Thermal Model Parameters

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



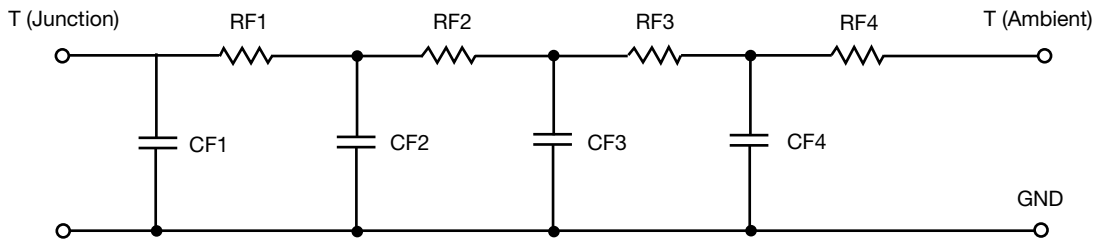
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	n/a	79.7957m	n/a
RT2	n/a	97.1095m	n/a
RT3	n/a	98.4146m	n/a
RT4	n/a	124.0081m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	n/a	99.8502m	n/a
CT2	n/a	9.0473m	n/a
CT3	n/a	73.4198m	n/a
CT4	n/a	268.8670m	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	n/a	81.5625m	n/a
RF2	n/a	17.8245m	n/a
RF3	n/a	114.7125m	n/a
RF4	n/a	182.2706m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	n/a	6.1616m	n/a
CF2	n/a	6.9945m	n/a
CF3	n/a	3.3366m	n/a
CF4	n/a	87.8481m	n/a

Note

- n/a indicates not applicable