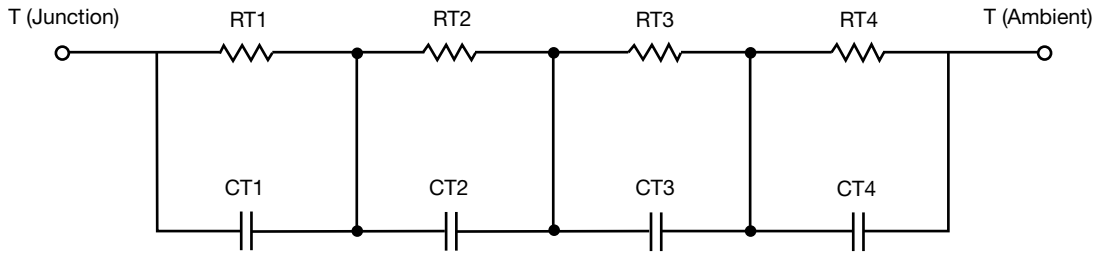
R-C Thermal Model Parameters

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



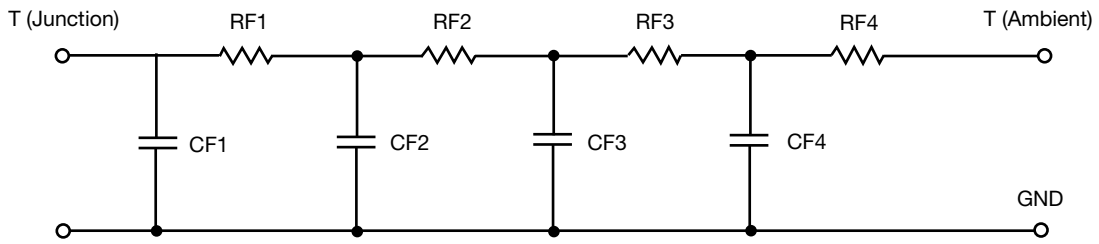
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	2.6892	321.8997m	n/a
RT2	655.5550m	670.0128m	n/a
RT3	449.4584m	366.7813m	n/a
RT4	36.2817	43.2498m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	940.6628m	12.7400m	n/a
CT2	1.1098	43.8849m	n/a
CT3	38.5440m	1.3851m	n/a
CT4	2.6825	11.5235	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	2.8596	431.5150m	n/a
RF2	5.1895	346.3509m	n/a
RF3	14.8442	553.5010m	n/a
RF4	16.9885	69.5540m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	281.1703m	1.1696m	n/a
CF2	1.0471	7.0669m	n/a
CF3	1.4882	36.3044m	n/a
CF4	35.7328m	1.8714	n/a

Note

- n/a indicates not applicable