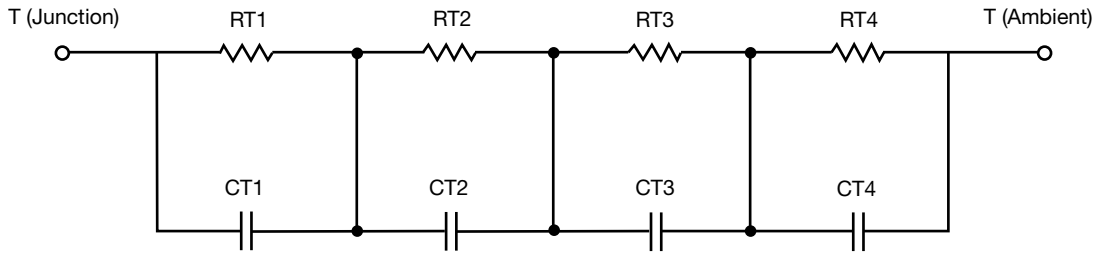
R-C Thermal Model Parameters

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



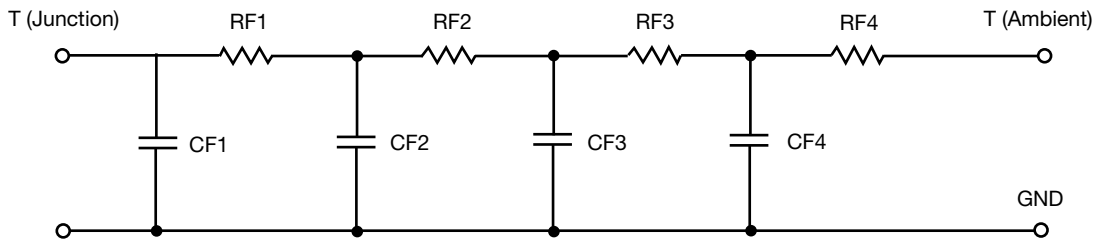
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	3.1734	158.9524m	n/a
RT2	5.5419	393.1358m	n/a
RT3	10.6722	139.9867m	n/a
RT4	22.9122	27.9335m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	11.4973m	9.3312m	n/a
CT2	314.9753m	924.1644u	n/a
CT3	22.7738	185.5179u	n/a
CT4	1.7916	95.0960m	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	2.9729	110.6875m	n/a
RF2	7.1949	288.8408m	n/a
RF3	22.1252	198.6399m	n/a
RF4	9.5835	121.8318m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	8.9294m	88.2005u	n/a
CF2	205.7663m	439.1810u	n/a
CF3	1.3826	1.1529m	n/a
CF4	13.8319	4.3324m	n/a

Note

- n/a indicates not applicable