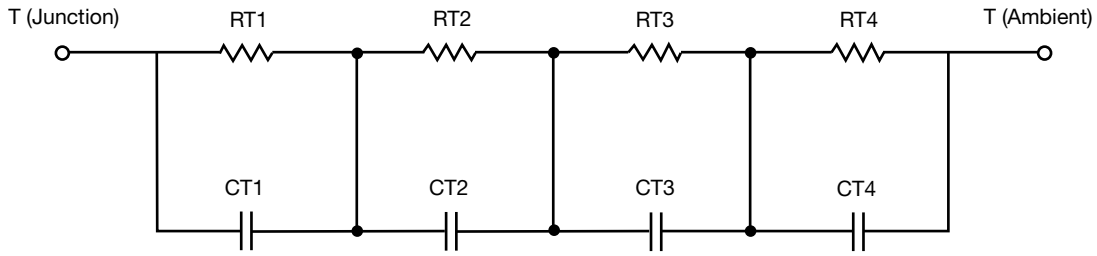
R-C Thermal Model Parameters

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



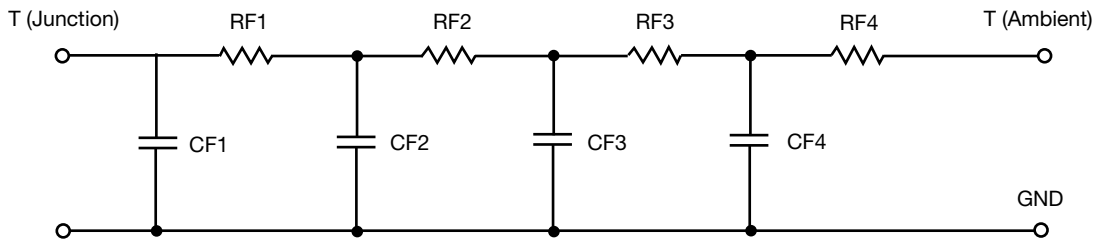
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	25.9215	287.4221m	n/a
RT2	7.6735	194.6408m	n/a
RT3	3.0689	460.9068m	n/a
RT4	13.3360	157.0304m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.9023	144.9770m	n/a
CT2	92.7859m	3.6371m	n/a
CT3	8.1257m	89.9791m	n/a
CT4	1.2064	573.5493m	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	2.9959	251.3387m	n/a
RF2	8.0865	769.6251m	n/a
RF3	16.4429	35.8556m	n/a
RF4	22.4746	43.1805m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	5.4607m	3.7489m	n/a
CF2	59.1010m	52.0325m	n/a
CF3	480.2729m	480.6746m	n/a
CF4	1.1299	25.8956m	n/a

Note

- n/a indicates not applicable