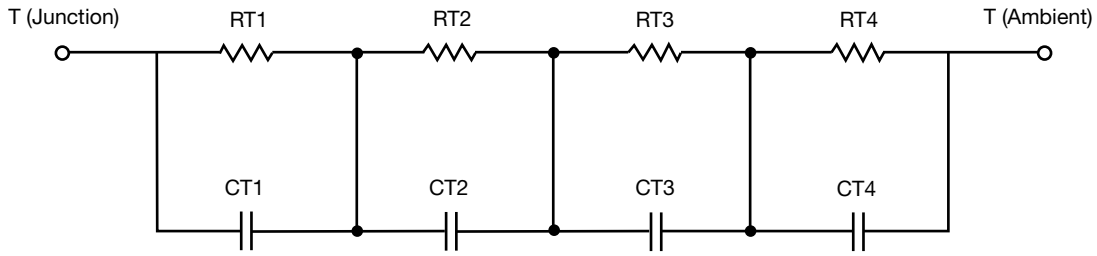
R-C Thermal Model Parameters

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



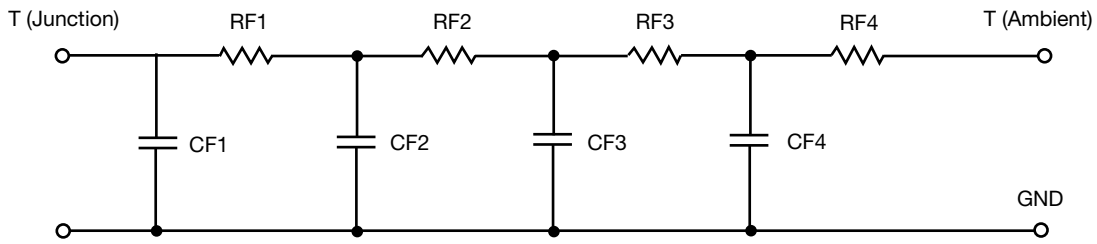
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	5.6185	355.0189u	n/a
RT2	9.8329	387.6525m	n/a
RT3	12.9345	788.8922m	n/a
RT4	56.6141	824.6885m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	433.5281m	133.2390u	n/a
CT2	19.2074m	3.4686m	n/a
CT3	514.0693m	48.6912m	n/a
CT4	1.4221	48.9651m	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	3.6967	7.7678m	n/a
RF2	13.3718	592.1618m	n/a
RF3	25.1252	756.5809m	n/a
RF4	42.5592	643.4897m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	7.2088m	106.3990u	n/a
CF2	40.5084m	3.7195m	n/a
CF3	357.9001m	24.5759m	n/a
CF4	1.4845	2.2475m	n/a

Note

- n/a indicates not applicable