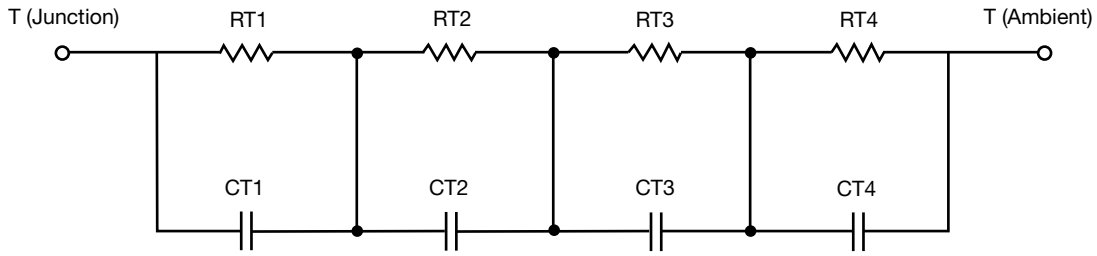
R-C Thermal Model Parameters

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



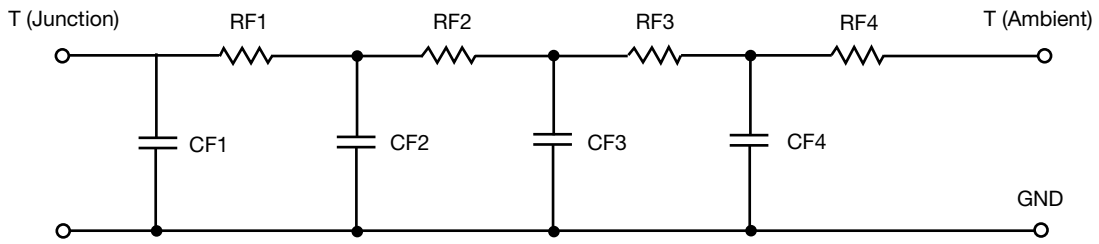
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	401.5000m	263.5159m	n/a
RT2	2.0375	50.4622m	n/a
RT3	13.8325	331.4315m	n/a
RT4	23.7285	604.5904m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	25.6093m	8.7877m	n/a
CT2	518.4192m	939.4319u	n/a
CT3	3.8123	402.8630m	n/a
CT4	5.0531	28.6433m	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	376.1000m	67.6344m	n/a
RF2	1.7283	391.8643m	n/a
RF3	13.6412	506.4472m	n/a
RF4	24.2544	284.0541m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	38.3315m	621.1511u	n/a
CF2	150.2300m	6.2861m	n/a
CF3	1.4757	20.4389m	n/a
CF4	1.8196	378.0983m	n/a

Note

- n/a indicates not applicable