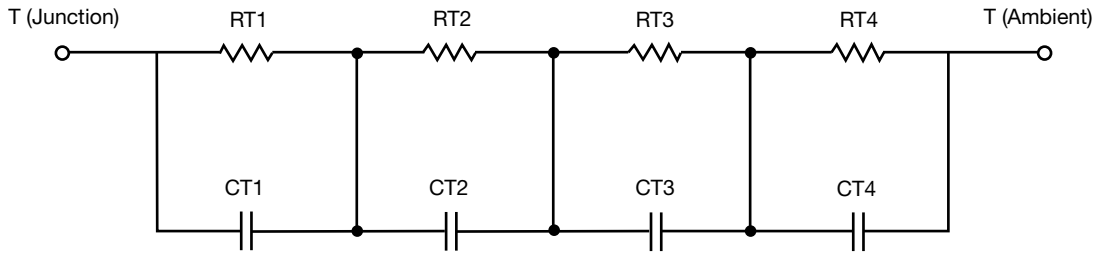
R-C Thermal Model Parameters

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



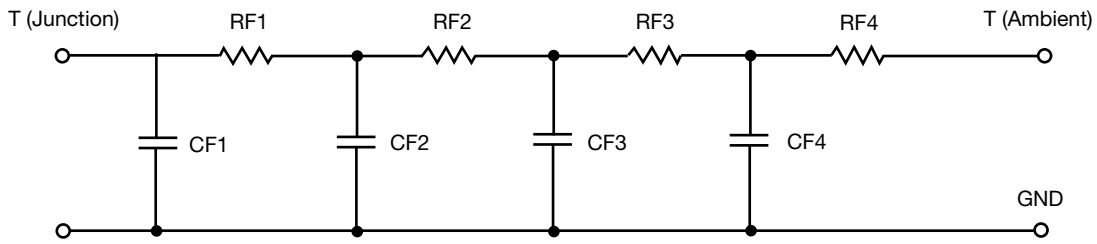
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	2.2058	520.9317m	n/a
RT2	11.3957	419.3839m	n/a
RT3	13.6157	65.8806m	n/a
RT4	37.7828	493.8038m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	16.8188m	30.4648m	n/a
CT2	89.3964m	10.5031m	n/a
CT3	1.8167	242.1447u	n/a
CT4	2.1596	33.3976m	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	4.6619	59.4905m	n/a
RF2	11.9752	377.6443m	n/a
RF3	21.6497	569.5658m	n/a
RF4	26.7132	493.2994m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	18.2632m	102.6852u	n/a
CF2	96.3580m	5.1651m	n/a
CF3	782.1678m	2.5888m	n/a
CF4	1.5899	14.6784m	n/a

Note

- n/a indicates not applicable