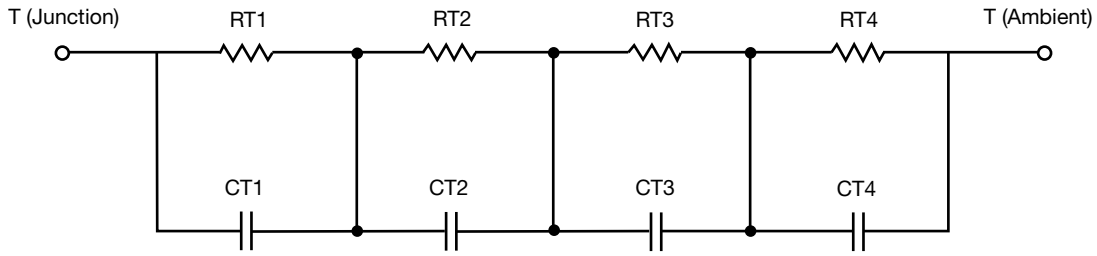
R-C Thermal Model Parameters

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



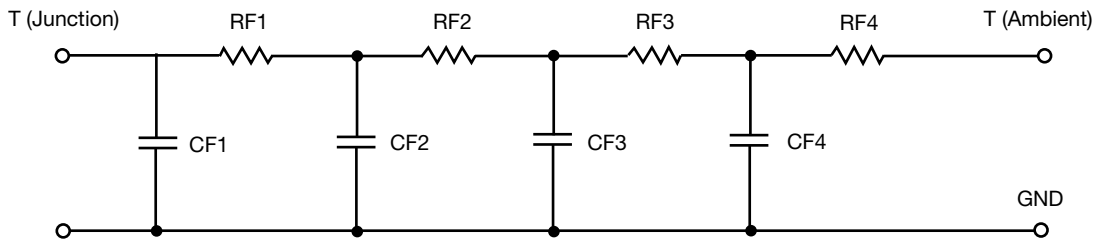
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	22.4885	311.3978m	n/a
RT2	7.4578	280.6935m	n/a
RT3	2.9141	275.8358m	n/a
RT4	17.2601	535.5086m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	5.0753	144.5462m	n/a
CT2	157.3938m	164.9966m	n/a
CT3	15.4863m	2.2595m	n/a
CT4	2.1863	44.0139m	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	3.1131	357.5385m	n/a
RF2	7.6916	1.0176	n/a
RF3	14.1923	30.3245m	n/a
RF4	24.7935	5.5304m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	10.1213m	2.3328m	n/a
CF2	125.4235m	30.2433m	n/a
CF3	927.0447m	1.9038	n/a
CF4	2.0684	1.8988m	n/a

Note

- n/a indicates not applicable