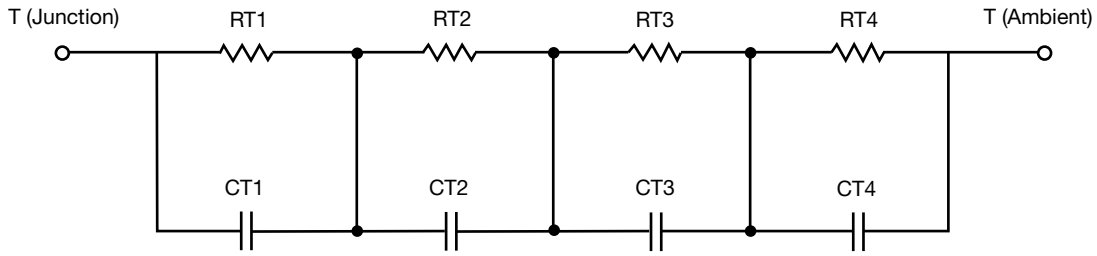
R-C Thermal Model Parameters

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



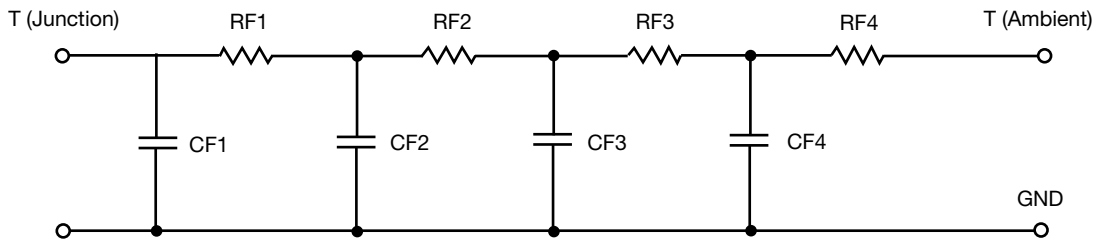
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	5.1337	247.8017m	n/a
RT2	9.0173	865.2842m	n/a
RT3	8.9986	117.5082m	n/a
RT4	46.8504	969.4059m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	6.4122m	3.6371m	n/a
CT2	507.5757m	55.5960m	n/a
CT3	91.9555m	102.5225m	n/a
CT4	1.4163	97.3661m	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	6.5780	279.3583m	n/a
RF2	13.0004	408.6697m	n/a
RF3	19.6926	1.4929	n/a
RF4	30.7290	19.0720m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	6.7289m	2.8693m	n/a
CF2	74.1763m	14.1559m	n/a
CF3	666.4047m	28.8693m	n/a
CF4	1.1295	2.5707	n/a

Note

- n/a indicates not applicable