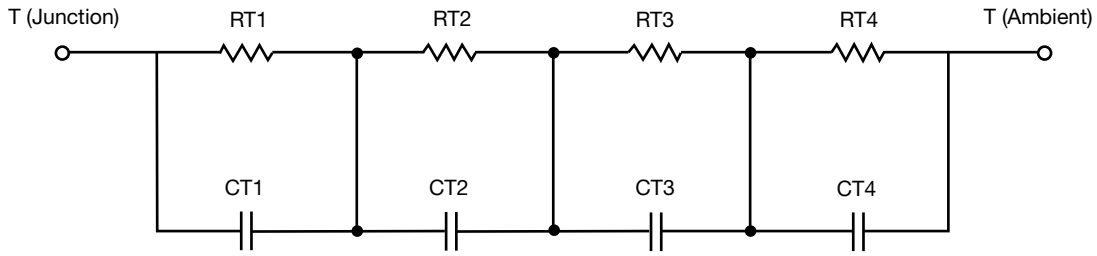
R-C Thermal Model Parameters

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



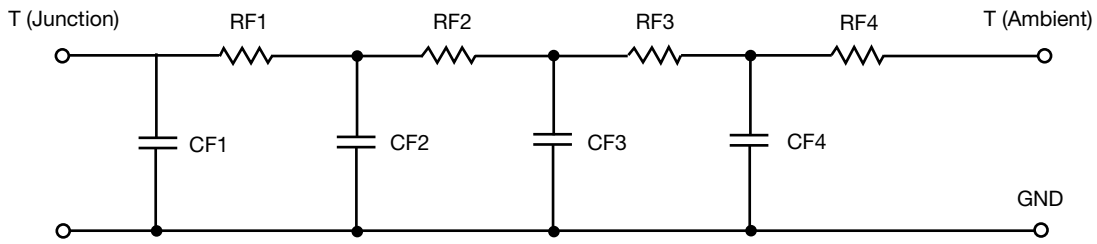
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	29.8159	398.9281m	n/a
RT2	1.9376	332.1682m	n/a
RT3	13.6091	158.4916m	n/a
RT4	8.6374	360.4121m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	3.7350	249.1256m	n/a
CT2	18.6184m	80.1601m	n/a
CT3	1.5010	1.4161m	n/a
CT4	105.9413m	24.9319m	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	2.6831	163.4952m	n/a
RF2	7.5828	608.5182m	n/a
RF3	23.4096	335.2327m	n/a
RF4	20.3245	142.7539m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	16.4174m	1.0406m	n/a
CF2	63.2639m	15.0810m	n/a
CF3	811.2187m	120.8551m	n/a
CF4	4.5732	1.5464m	n/a

Note

- n/a indicates not applicable