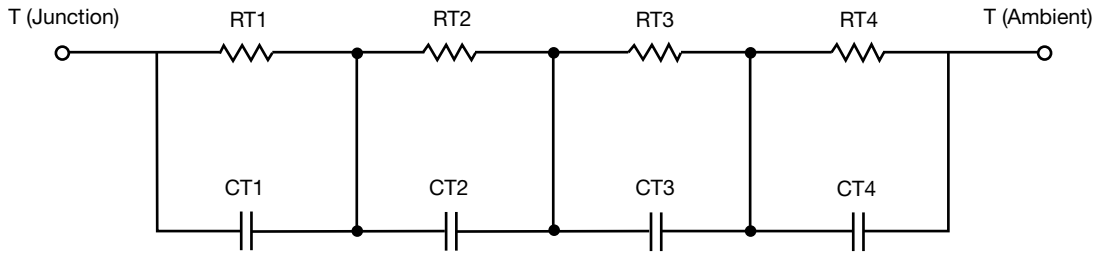
R-C Thermal Model Parameters

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



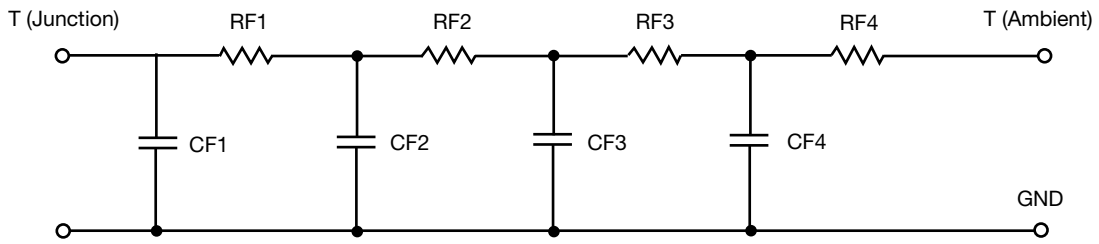
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	46.8602	576.9457m	n/a
RT2	7.0135	825.6349m	n/a
RT3	10.0591	993.2614m	n/a
RT4	1.0672	4.1580m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.4056	1.7247m	n/a
CT2	38.9222m	15.0397m	n/a
CT3	315.4560m	17.3604m	n/a
CT4	1.5163m	143.9999m	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	2.9971	685.8128m	n/a
RF2	10.6903	822.6436m	n/a
RF3	20.4651	362.5426m	n/a
RF4	30.8475	529.0010m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	9.4670m	1.2784m	n/a
CF2	46.3860m	5.0906m	n/a
CF3	573.8685m	2.0523m	n/a
CF4	1.6258	13.8473m	n/a

Note

- n/a indicates not applicable