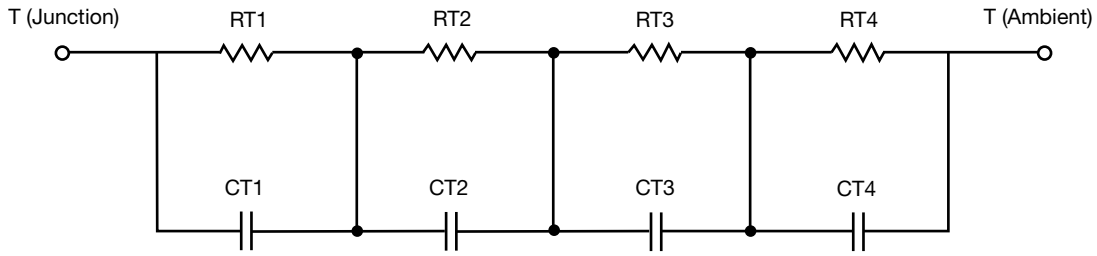
R-C Thermal Model Parameters

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



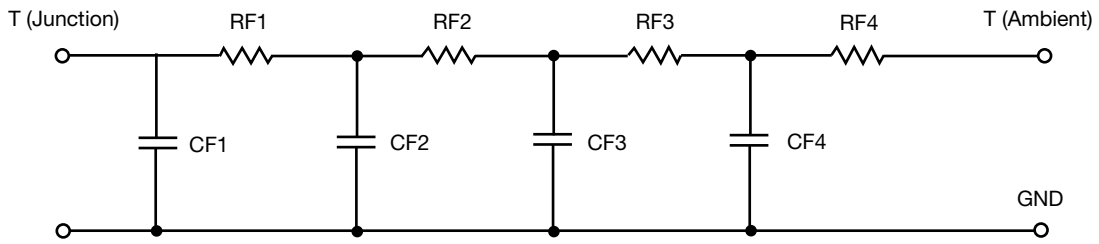
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	17.1276	148.9269m	n/a
RT2	18.7934	488.2180m	n/a
RT3	3.4460	344.7734m	n/a
RT4	633.0000m	417.0471m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	6.0385	3.7078m	n/a
CT2	4.8418	90.5367m	n/a
CT3	1.0801	2.2746m	n/a
CT4	135.5474m	25.8568m	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	395.9000m	558.6130m	n/a
RF2	3.6827	491.4141m	n/a
RF3	29.4697	74.5539m	n/a
RF4	6.4517	271.9920m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	18.0023m	1.4215m	n/a
CF2	420.7831m	18.5332m	n/a
CF3	1.9529	34.3947m	n/a
CF4	6.2882	112.8532m	n/a

Note

- n/a indicates not applicable