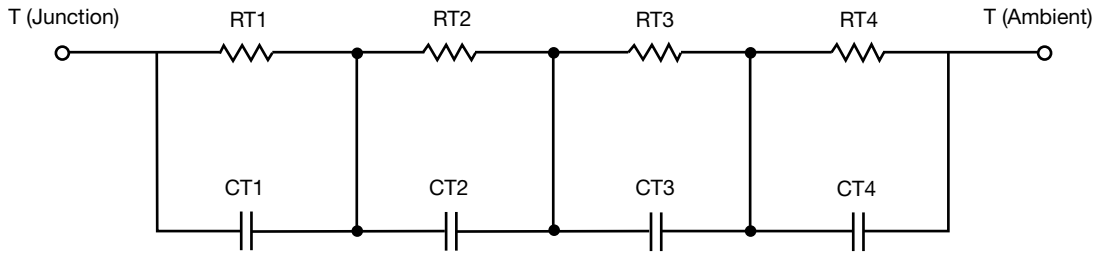
R-C Thermal Model Parameters

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



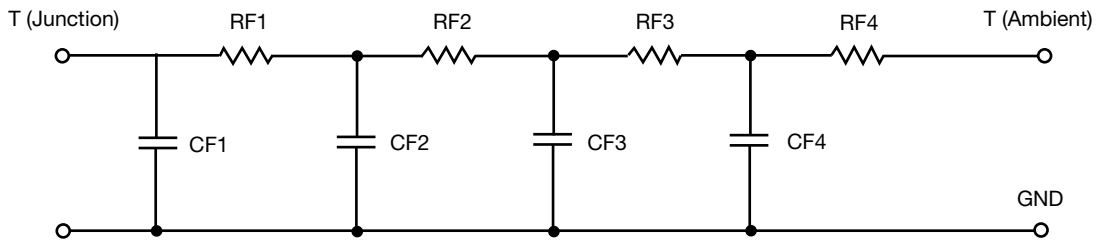
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	9.0852	260.7193m	n/a
RT2	40.6340	661.0908m	n/a
RT3	9.7491	275.9807m	n/a
RT4	3.0317	702.2092m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	803.6157m	2.5630m	n/a
CT2	2.0229	23.9265m	n/a
CT3	74.2092m	7.8369m	n/a
CT4	8.5999m	22.5391m	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	5.0321	67.6715m	n/a
RF2	12.7651	531.8521m	n/a
RF3	19.7750	407.6024m	n/a
RF4	24.9278	892.8740m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	9.9167m	678.2552u	n/a
CF2	86.7354m	1.3236m	n/a
CF3	897.7141m	5.3457m	n/a
CF4	2.1347	7.4432m	n/a

Note

- n/a indicates not applicable