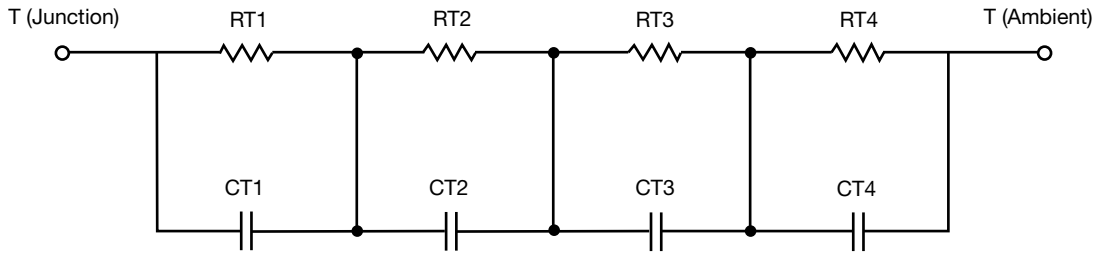
R-C Thermal Model Parameters

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



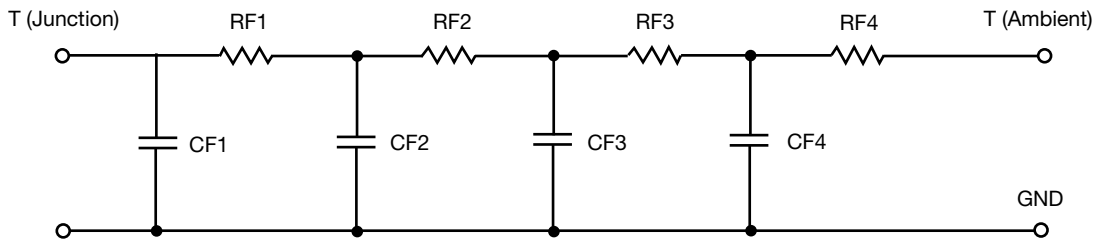
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	2.5874	348.5245m	n/a
RT2	46.4745	1.5908	n/a
RT3	14.3023	729.7004m	n/a
RT4	6.6358	630.9751m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.7922m	37.1736m	n/a
CT2	1.4204	4.1534m	n/a
CT3	148.4878m	906.7828u	n/a
CT4	26.1568m	19.4701m	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	1.9823	713.0904m	n/a
RF2	8.1591	760.3623m	n/a
RF3	16.9557	650.4473m	n/a
RF4	42.9029	1.1761	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	743.7776u	445.4353u	n/a
CF2	11.8658m	1.6242m	n/a
CF3	131.9260m	690.1329u	n/a
CF4	1.3652	3.6007m	n/a

Note

- n/a indicates not applicable