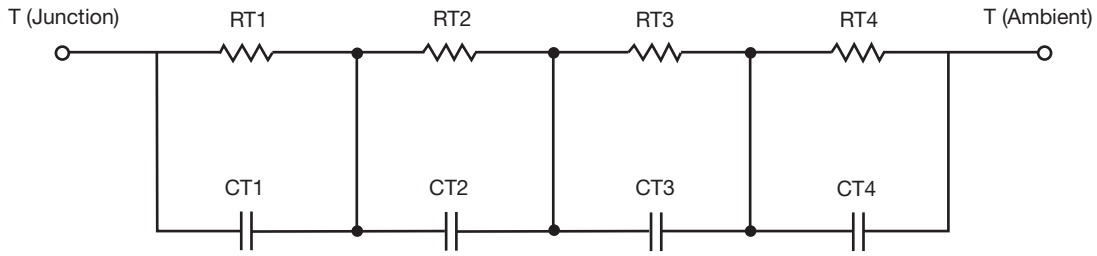
R-C Thermal Model Parameters

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



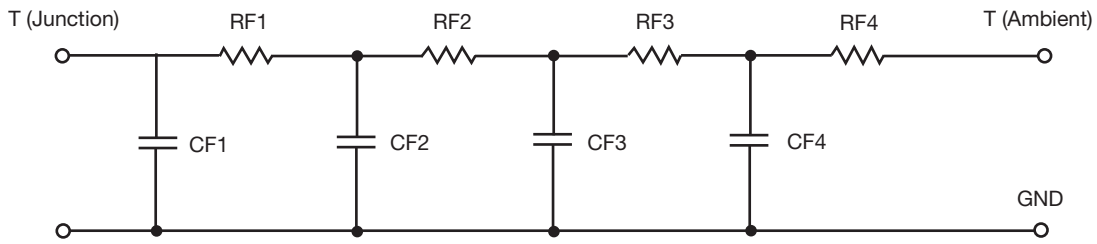
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	35.9996	213.9067m	n/a
RT2	7.3518	449.6807m	n/a
RT3	5.2672	246.2118m	n/a
RT4	1.3708	190.2008m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.0816	4.0550m	n/a
CT2	347.0692m	78.9844m	n/a
CT3	37.5408m	297.0685m	n/a
CT4	2.2136m	341.8020m	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	1.2716	260.8548m	n/a
RF2	7.0101	702.2532m	n/a
RF3	12.4348	109.0774m	n/a
RF4	29.2241	27.8146m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	1.4748m	4.0642m	n/a
CF2	29.3503m	55.2295m	n/a
CF3	286.9358m	68.0395m	n/a
CF4	1.0094	83.7224m	n/a

Note

- n/a indicates not applicable