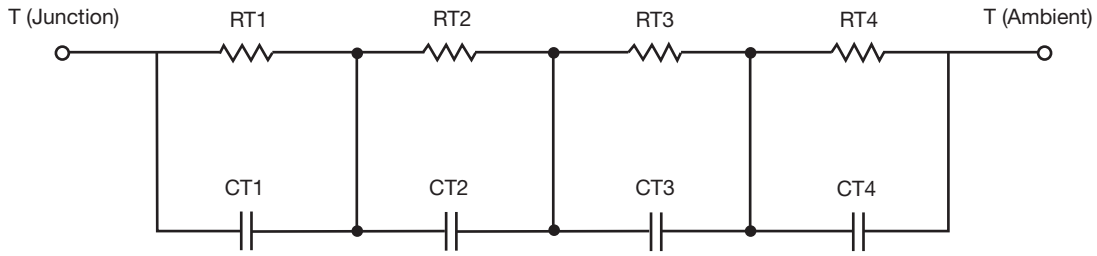
R-C Thermal Model Parameters

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



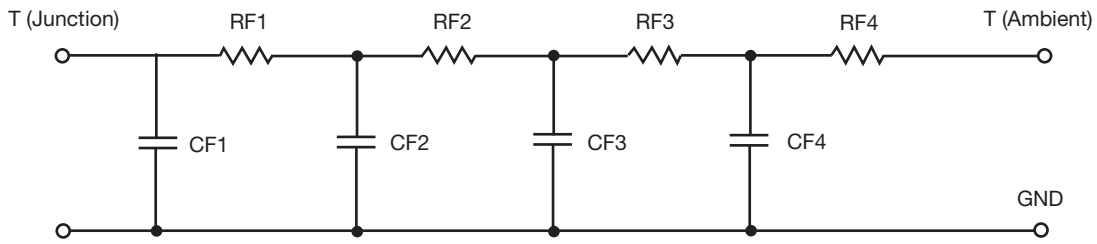
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	17.4540	211.6686m	n/a
RT2	8.8541	949.2917m	n/a
RT3	1.9209	299.0868m	n/a
RT4	39.2552	744.0143m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	548.4738m	2.7032m	n/a
CT2	55.1520m	38.3806m	n/a
CT3	5.5033m	14.6596m	n/a
CT4	2.7551	70.3460m	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	2.9643	484.6824m	n/a
RF2	9.9738	489.1466m	n/a
RF3	22.1893	598.3292m	n/a
RF4	32.4522	630.2562m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	7.3509m	2.5904m	n/a
CF2	47.6940m	16.2999m	n/a
CF3	417.1321m	138.1058u	n/a
CF4	2.8067	31.6554m	n/a

Note

- n/a indicates not applicable