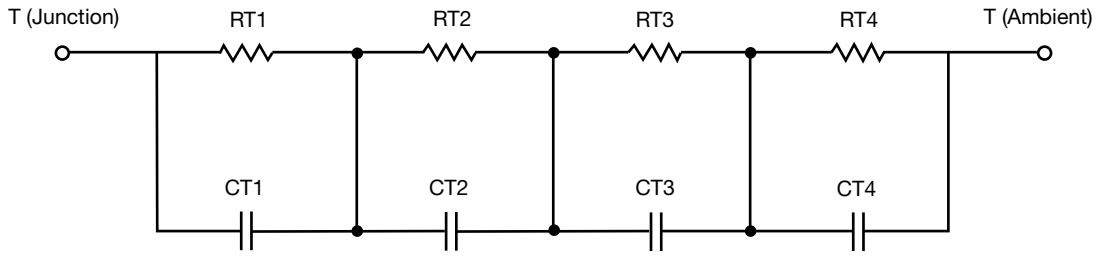
R-C Thermal Model Parameters

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



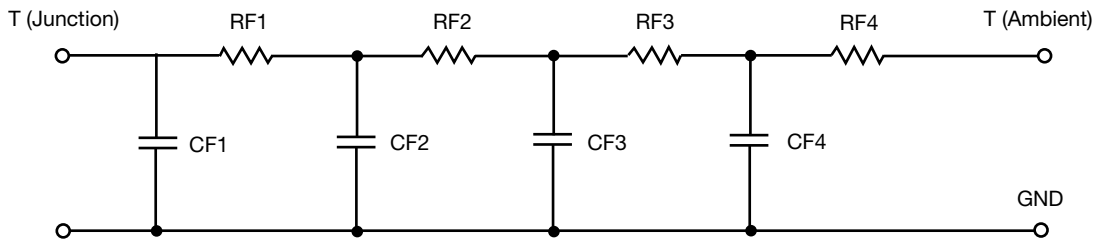
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	12.7139	555.5838m	n/a
RT2	15.3010	785.8848m	n/a
RT3	3.2828	1.0515	n/a
RT4	49.7024	7.0002m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	546.0991m	1.1807m	n/a
CT2	24.4902m	16.7108m	n/a
CT3	2.4327m	6.0207m	n/a
CT4	1.3287	363.3811m	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	2.7820	899.5867m	n/a
RF2	16.7730	773.3642m	n/a
RF3	21.5540	726.3943m	n/a
RF4	39.8909	3.8002	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	1.2260m	960.0280u	n/a
CF2	17.6139m	4.3133m	n/a
CF3	343.6081m	2.7867m	n/a
CF4	1.2167	145.6819	n/a

Note

- n/a indicates not applicable