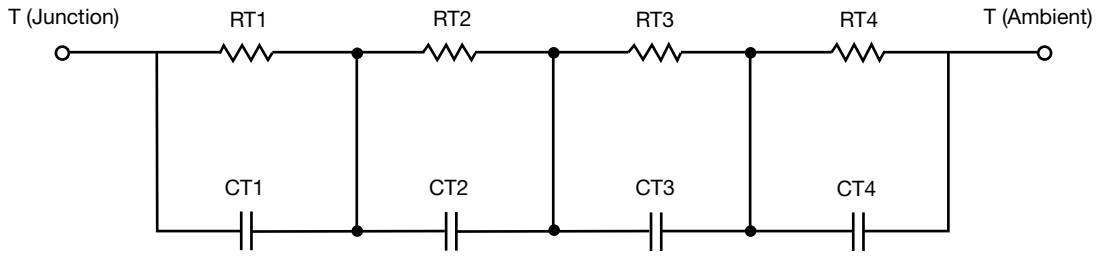
R-C Thermal Model Parameters

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



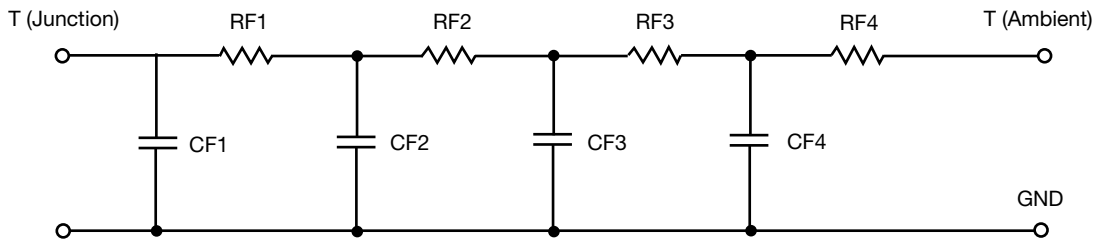
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	2.2422	637.9235m	n/a
RT2	13.2434	515.1305m	n/a
RT3	7.8068	117.0011m	n/a
RT4	30.7077	129.9448m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	20.4892m	113.9831m	n/a
CT2	1.3609	25.5008m	n/a
CT3	111.2115m	25.0871u	n/a
CT4	3.5349	13.9215m	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	2.6111	173.4362m	n/a
RF2	8.2814	56.7689m	n/a
RF3	20.5410	660.9690m	n/a
RF4	22.5664	508.8259m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	14.9142m	965.5295u	n/a
CF2	73.9922m	7.9830m	n/a
CF3	797.4678m	6.7633m	n/a
CF4	3.6430	117.8164m	n/a

Note

- n/a indicates not applicable