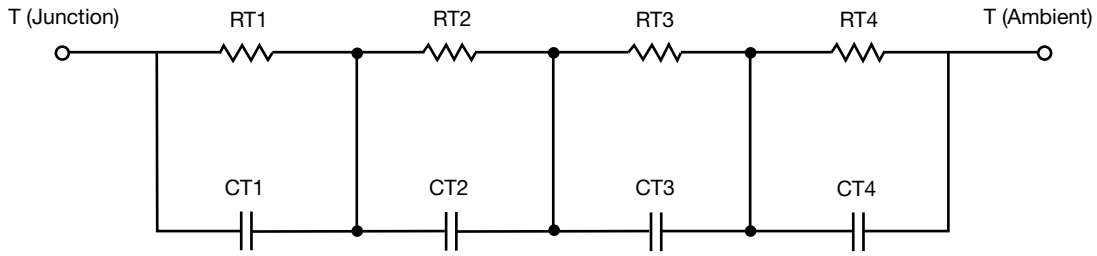
R-C Thermal Model Parameters

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



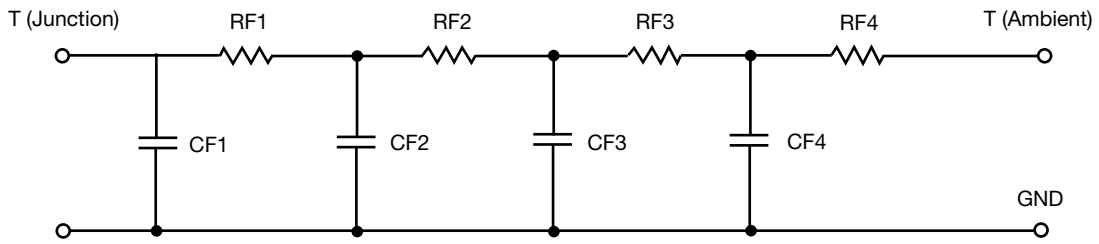
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	2.6374	421.5890m	n/a
RT2	13.2935	1.0096	n/a
RT3	12.4369	232.9791m	n/a
RT4	56.3054	1.4329	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.4394m	1.4145m	n/a
CT2	16.6791m	17.4361m	n/a
CT3	270.9481m	59.1576m	n/a
CT4	1.3222	5.8779m	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	3.2575	467.5503m	n/a
RF2	15.0174	1.1566	n/a
RF3	17.8297	770.6805m	n/a
RF4	48.6626	702.1374m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	1.5992m	928.7115u	n/a
CF2	14.6663m	1.7026m	n/a
CF3	264.8570m	5.3175m	n/a
CF4	1.2799	698.0115u	n/a

Note

- n/a indicates not applicable