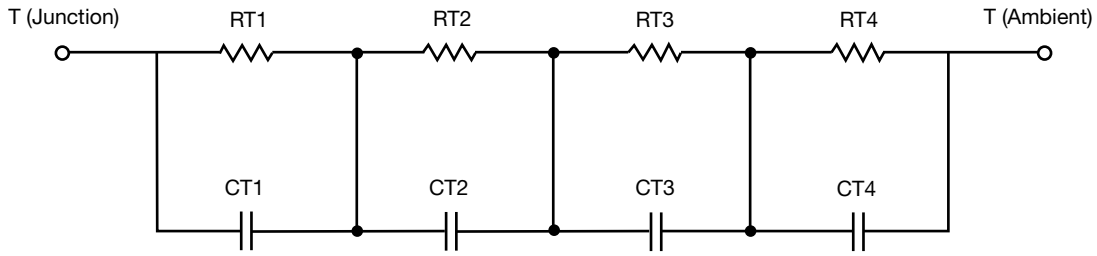
R-C Thermal Model Parameters

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



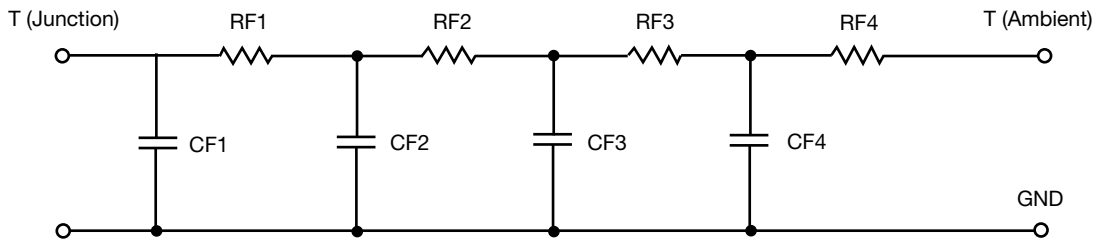
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	2.0541	84.4267m	n/a
RT2	20.0096	16.2188m	n/a
RT3	6.3449	436.7528m	n/a
RT4	26.5914	422.6017m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	4.0088m	213.2297u	n/a
CT2	1.0548	232.6641u	n/a
CT3	105.0957m	780.1797u	n/a
CT4	4.6419	3.0016m	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	2.3637	114.4199m	n/a
RF2	7.3675	504.1335m	n/a
RF3	24.2924	224.7852m	n/a
RF4	20.9764	116.6614m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	4.3781m	95.8181u	n/a
CF2	93.0312m	426.7479u	n/a
CF3	711.2420m	1.6633m	n/a
CF4	4.1845	8.0292m	n/a

Note

- n/a indicates not applicable