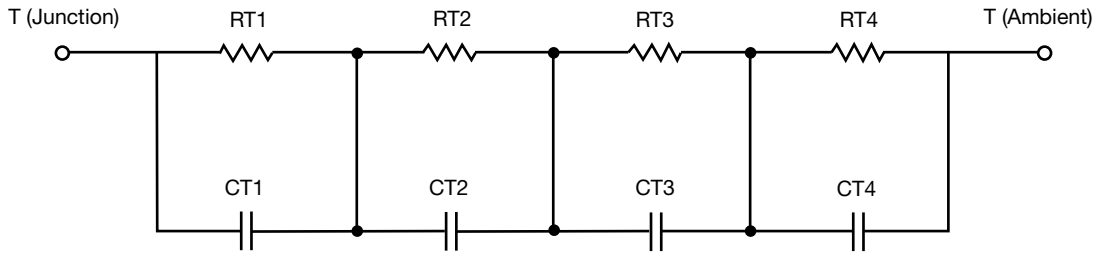
R-C Thermal Model Parameters

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



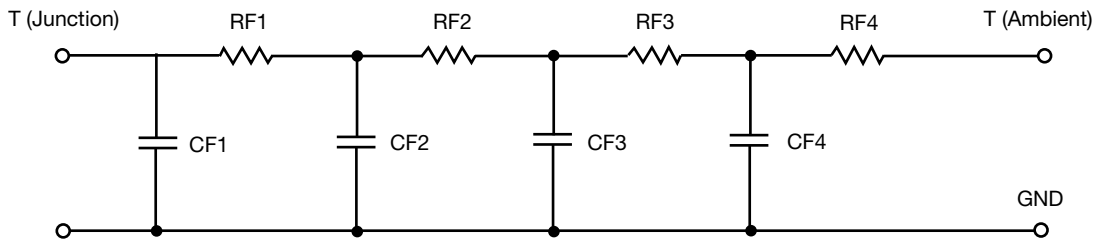
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	3.9909	27.7226m	n/a
RT2	11.2351	713.3935m	n/a
RT3	14.9408	371.3819m	n/a
RT4	34.8332	787.5020m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	18.2410m	12.1117	n/a
CT2	161.3231m	10.2102m	n/a
CT3	2.6124	1.1361m	n/a
CT4	2.4645	22.3114m	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	4.4464	646.1041m	n/a
RF2	11.3944	718.2059m	n/a
RF3	24.2973	396.7723m	n/a
RF4	24.8619	139.8980m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	15.8605m	1.1216m	n/a
CF2	95.3498m	10.2114m	n/a
CF3	898.9635m	387.8278u	n/a
CF4	1.5075	8.6669m	n/a

Note

- n/a indicates not applicable