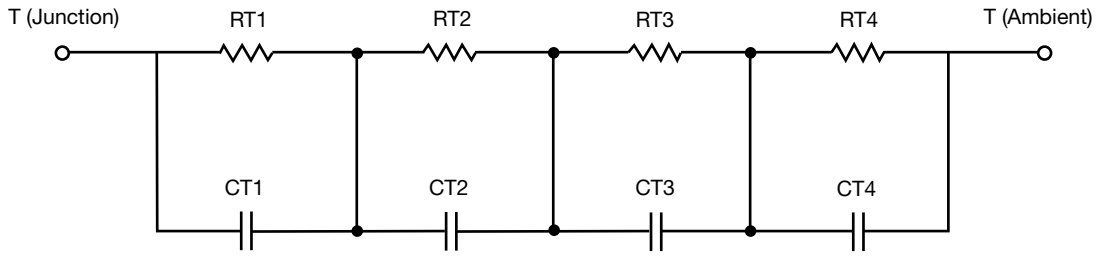
R-C Thermal Model Parameters

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



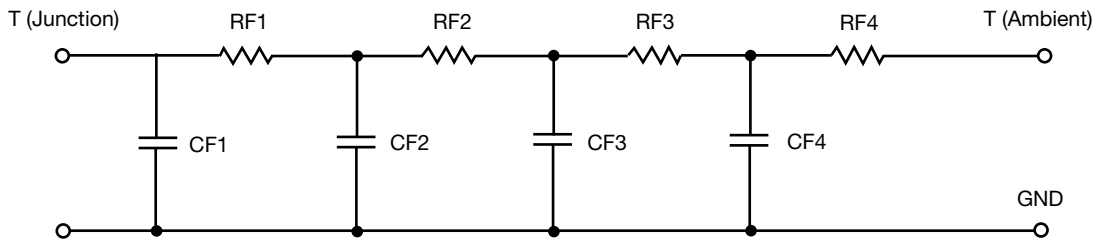
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	10.0553	1.5272	n/a
RT2	6.9897	570.2691m	n/a
RT3	5.0707	260.3511m	n/a
RT4	47.8843	542.1800m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	243.0886m	30.6663m	n/a
CT2	76.8145m	1.9110m	n/a
CT3	1.7239m	14.5123m	n/a
CT4	1.3994	287.4829m	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	5.4372	903.2762m	n/a
RF2	13.0692	1.4580	n/a
RF3	12.3538	500.6201m	n/a
RF4	39.1398	38.1040m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	1.7185m	1.7687m	n/a
CF2	57.4898m	28.3401m	n/a
CF3	458.9787m	279.0978u	n/a
CF4	1.1581	35.8661	n/a

Note

- n/a indicates not applicable