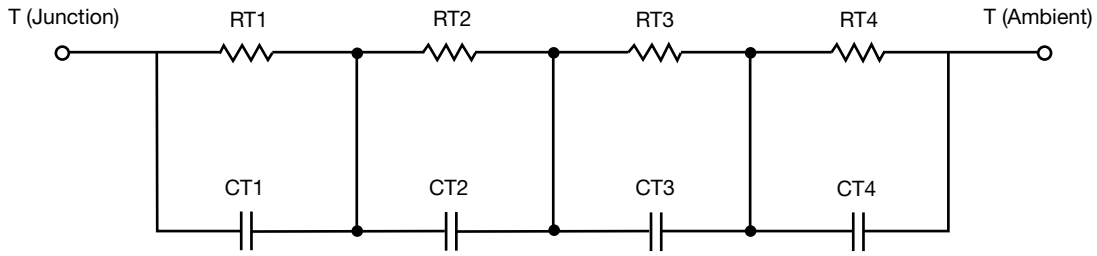
R-C Thermal Model Parameters

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



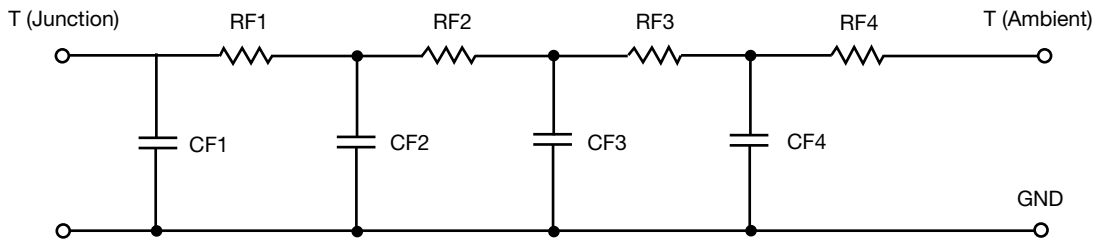
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	25.171	187.4407m	n/a
RT2	6.1227	331.8034m	n/a
RT3	2.7422	151.7239m	n/a
RT4	20.9641	129.0320m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	4.7418	410.8543u	n/a
CT2	143.8533m	1.6114m	n/a
CT3	14.7320m	18.0400m	n/a
CT4	1.0994	9.4877m	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	2.3995	338.4839m	n/a
RF2	7.2967	217.3907m	n/a
RF3	26.6101	149.9237m	n/a
RF4	18.6937	94.2017m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	6.5538m	339.2478u	n/a
CF2	79.9446m	1.3590m	n/a
CF3	740.7092m	541.9744u	n/a
CF4	4.6677	25.1570m	n/a

Note

- n/a indicates not applicable