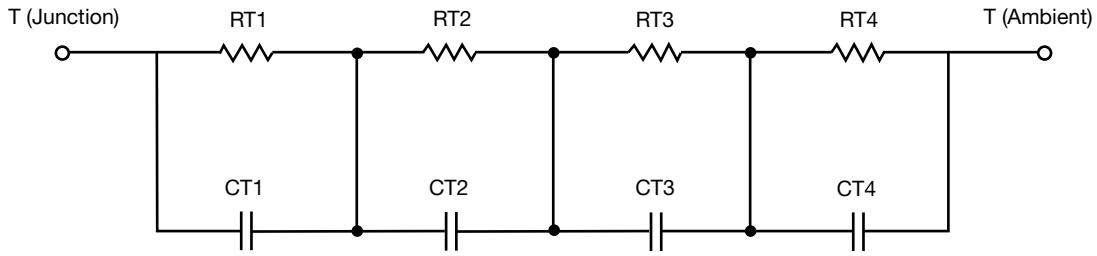
R-C Thermal Model Parameters

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



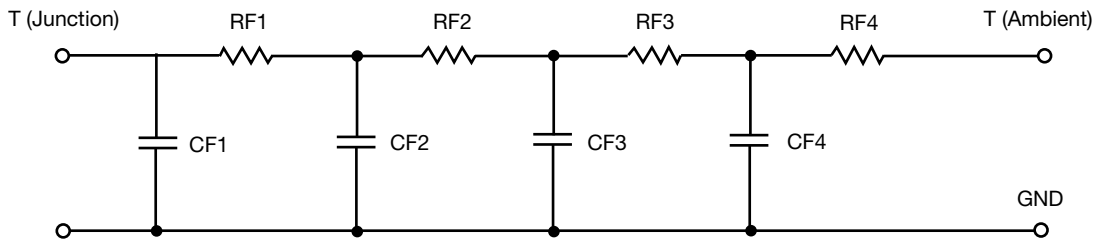
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	1.3326	213.2987m	n/a
RT2	7.1225	244.8663m	n/a
RT3	8.5839	873.9002m	n/a
RT4	47.9610	967.9348m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	9.0273m	1.2460m	n/a
CT2	68.8788m	2.4651m	n/a
CT3	458.1631m	9.0575m	n/a
CT4	1.5389	17.9119m	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	3.8804	528.7994m	n/a
RF2	10.4091	894.2351m	n/a
RF3	19.6239	832.3065m	n/a
RF4	31.0866	44.6590m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	13.0526m	715.9232u	n/a
CF2	78.5055m	4.1535m	n/a
CF3	718.0263m	8.4269m	n/a
CF4	1.3336	3.1320m	n/a

Note

- n/a indicates not applicable