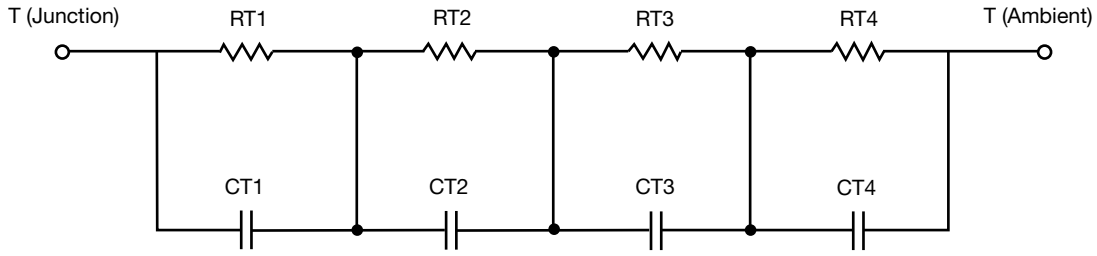
R-C Thermal Model Parameters

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 P-SPICE, 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 P-SPICE 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 P-SPICE Platform”.

R-C THERMAL MODEL FOR TANK CONFIGURATION



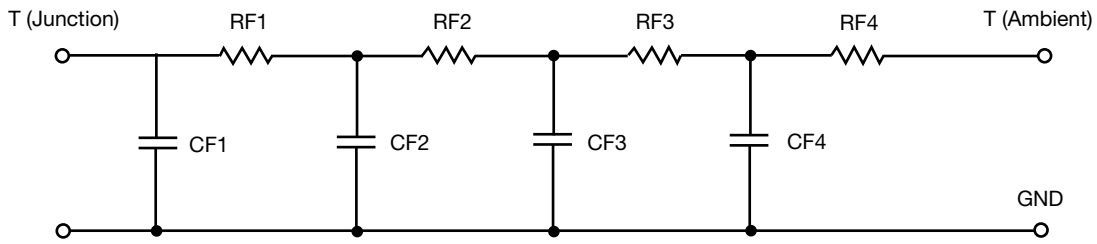
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	52.8745	N/A	48.0708
RT2	15.9582	N/A	12.9024
RT3	71.8618	N/A	8.5959
RT4	77.7835	N/A	30.4309
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.3172	N/A	592.9211u
CT2	44.1448u	N/A	49.6255u
CT3	8.9552m	N/A	265.2869m
CT4	608.6715u	N/A	2.9450m

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	19.4368	N/A	15.3092
RF2	84.2790	N/A	69.7399
RF3	62.0696	N/A	1.4171
RF4	52.8713	N/A	13.5338
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	46.8679u	N/A	39.3720u
CF2	537.6082u	N/A	490.9264u
CF3	9.1607m	N/A	19.8760m
CF4	1.2701	N/A	32.7497m

Note

- n/a indicates not applicable