



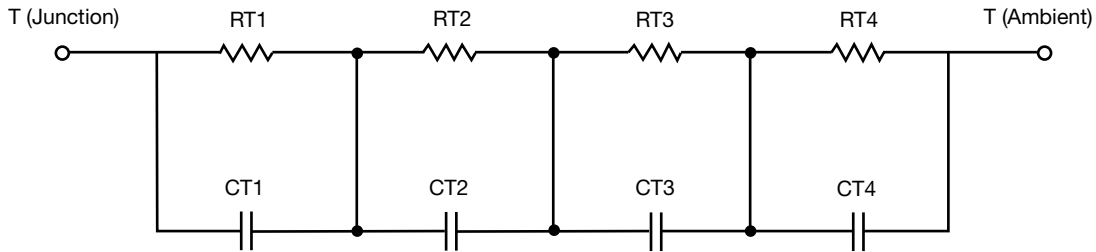
# R-C Thermal Model Parameters

## 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
	Channel 1	Channel 2	Channel 1	Channel 2	
RT1	13.6352	12.5213	2.2857	945.7941m	N/A
RT2	16.0045	14.5124	2.3276	732.0665m	N/A
RT3	8.4955	6.2278	1.4025	927.8234m	N/A
RT4	30.1595	29.9963	1.4813	1.4036	N/A
THERMAL CAPACITANCE (Joules/°C)					
Junction to	Ambient		Case		Foot
	Channel 1	Channel 2	Channel 1	Channel 2	
CT1	1.0818	1.0148	11.6603m	3.1474m	N/A
CT2	16.1220m	19.7736m	2.6914m	209.3004u	N/A
CT3	1.2769m	1.8035m	3.0307m	2.2672m	N/A
CT4	3.3719	3.2165	175.9175u	6.5725m	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
	Channel 1	Channel 2	Channel 1	Channel 2	
RF1	9.9402	7.7581	1.4238	957.0293m	N/A
RF2	14.7304	13.2352	4.0294	2.2268	N/A
RF3	16.4493	15.3977	150.3258m	98.6961m	N/A
RF4	26.7340	26.5451	1.8803	709.6095m	N/A
THERMAL CAPACITANCE (Joules/°C)					
Junction to	Ambient		Case		Foot
	Channel 1	Channel 2	Channel 1	Channel 2	
CF1	1.2176m	1.7689m	102.6917u	174.2524u	N/A
CF2	15.1217m	19.0911m	950.4649u	922.9209u	N/A
CF3	658.1118m	622.0107m	8.2104m	7.8194m	N/A
CF4	2.3393	2.3554	1.2511m	1.3706m	N/A

Note

- n/a indicates not applicable

