



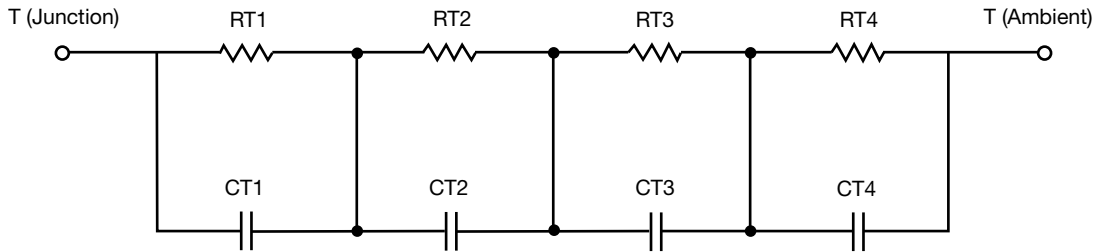
# R-C Thermal Model Parameters

## 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
	NCh-Channel 1	PCh-Channel 2	NCh-Channel 1	PCh-Channel 2	
RT1	15.5174	15.5174	430.2665m	430.7730m	n/a
RT2	10.1139	10.1139	1.2358	1.2357	n/a
RT3	1.1501	1.1501	50.3976m	50.6372m	n/a
RT4	57.6700	57.6700	1.3761	1.3760	n/a
THERMAL CAPACITANCE (Joules/°C)					
Junction to	Ambient		Case		Foot
	NCh-Channel 1	PCh-Channel 2	NCh-Channel 1	PCh-Channel 2	
CT1	110.5083m	110.5083m	1.9016m	1.9031m	n/a
CT2	9.3594m	9.3594m	7.8791m	7.8741m	n/a
CT3	624.1502u	624.1502u	2.1200m	2.1209m	n/a
CT4	1.2349	1.2349	10.4604m	10.4579m	n/a

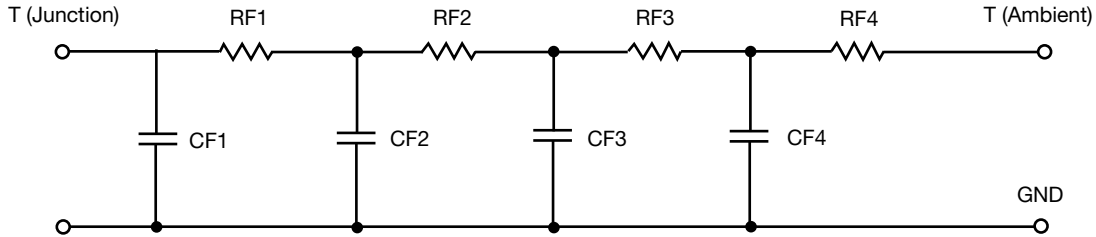
### Note

- 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
	NCh-Channel 1	PCh-Channel 2	NCh-Channel 1	PCh-Channel 2	
RF1	8.9198	8.9198	458.3625m	458.1826m	n/a
RF2	13.6377	13.6377	406.8149m	407.2412m	n/a
RF3	18.1386	18.1386	1.6590	1.6618	n/a
RF4	44.1144	44.1144	565.9177m	566.4741m	n/a
THERMAL CAPACITANCE (Joules/°C)					
Junction to	Ambient		Case		Foot
	NCh-Channel 1	PCh-Channel 2	NCh-Channel 1	PCh-Channel 2	
CF1	4.5782m	4.5782m	1.1602m	1.1598m	n/a
CF2	40.3460m	40.3460m	4.9202u	4.9187u	n/a
CF3	435.7574m	435.7574m	4.1389m	4.1309m	n/a
CF4	1.2168	1.2168	25.0215u	25.0146u	n/a

Note

- n/a indicates not applicable

