

## 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



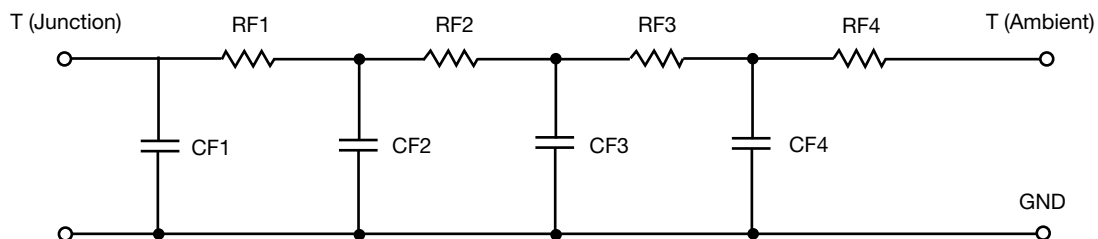
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE ( $^{\circ}\text{C}/\text{W}$ )			
Junction to	Ambient	Case	Foot
RT1	61.2881	N/A	9.0634
RT2	18.2832	N/A	2.7529
RT3	60.4151	N/A	7.5913
RT4	24.7131	N/A	30.5800
THERMAL CAPACITANCE (Joules/ $^{\circ}\text{C}$ )			
Junction to	Ambient	Case	Foot
CT1	1.4301	N/A	4.1438m
CT2	209.4935m	N/A	279.5008u
CT3	5.9261m	N/A	235.0566m
CT4	1.1049m	N/A	12.3989m

#### 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	13.2515	N/A	4.5694
RF2	47.7764	N/A	19.5812
RF3	39.0007	N/A	23.0159
RF4	63.8732	N/A	3.2135
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	463.4177u	N/A	418.9755u
CF2	2.0264m	N/A	3.7740m
CF3	15.7869m	N/A	15.4965m
CF4	1.1630	N/A	1.0248

**Note**

N/A indicates not applicable

