

## 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

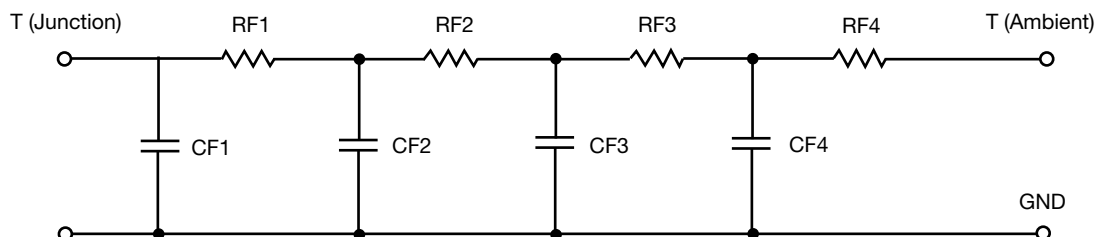


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	28.9430	N/A	15.2443
RT2	21.0850	N/A	13.4018
RT3	10.5330	N/A	7.3303
RT4	59.4390	N/A	4.0236
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	72.8834m	N/A	69.7571m
CT2	11.4318m	N/A	5.7621m
CT3	1.6633m	N/A	10.9704m
CT4	1.2581	N/A	497.7324u

#### 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**

<b>R-C VALUES FOR FILTER CONFIGURATION</b>			
<b>THERMAL RESISTANCE (°C/W)</b>			
<b>Junction to</b>	<b>Ambient</b>	<b>Case</b>	<b>Foot</b>
RF1	5.1975	N/A	8.3550
RF2	20.1538	N/A	13.1372
RF3	34.5858	N/A	9.4043
RF4	59.5672	N/A	8.9514
<b>THERMAL CAPACITANCE (Joules/°C)</b>			
<b>Junction to</b>	<b>Ambient</b>	<b>Case</b>	<b>Foot</b>
CF1	2.1234m	N/A	811.1132u
CF2	442.9196u	N/A	3.3313m
CF3	33.2191m	N/A	8.9361m
CF4	1.1095	N/A	142.2223m

**Note**

N/A indicates not applicable

