

## 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



<b>R-C VALUES FOR TANK CONFIGURATION</b>			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	74.5522	N/A	N/A
RT2	291.4523	N/A	N/A
RT3	181.6415	N/A	N/A
RT4	102.3540	N/A	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	310.7253 m	N/A	N/A
CT2	5.1851 m	N/A	N/A
CT3	3.2569 m	N/A	N/A
CT4	220.2916 u	N/A	N/A

*This document is intended as a SPICE modeling guideline and does not constitute a commercial product data sheet. Designers should refer to the appropriate data sheet of the same number for guaranteed specification limits.*

**R-C THERMAL MODEL FOR FILTER CONFIGURATION****R-C VALUES FOR FILTER CONFIGURATION**

Thermal Resistance ( $^{\circ}\text{C}/\text{W}$ )			
Junction to	Ambient	Case	Foot
RF1	107.6834	N/A	N/A
RF2	275.9264	N/A	N/A
RF3	203.6662	N/A	N/A
RF4	62.7240	N/A	N/A
Thermal Capacitance (Joules/ $^{\circ}\text{C}$ )			
Junction to	Ambient	Case	Foot
CF1	166.3995 $\mu$	N/A	N/A
CF2	1.5226 m	N/A	N/A
CF3	3.4565 m	N/A	N/A
CF4	403.9895 m	N/A	N/A

**Note**

NA indicates not applicable

