

## 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>			
<b>Thermal Resistance (°C/W)</b>			
<b>Junction to</b>	<b>Ambient</b>	<b>Case</b>	<b>Foot</b>
RT1	721.5000 m	245.8668 m	N/A
RT2	4.0594	130.7588 m	N/A
RT3	11.7228	689.2463 m	N/A
RT4	48.4963	434.1281 m	N/A
<b>Thermal Capacitance (Joules/°C)</b>			
<b>Junction to</b>	<b>Ambient</b>	<b>Case</b>	<b>Foot</b>
CT1	2.1848 m	2.1032 m	N/A
CT2	46.9554 m	63.4203 m	N/A
CT3	185.9092 m	11.8271 m	N/A
CT4	1.4565	19.0799 m	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 (°C/W)			
Junction to	Ambient	Case	Foot
RF1	1.0206	400.8320 m	N/A
RF2	7.8136	214.8692 m	N/A
RF3	13.1439	98.0585 m	N/A
RF4	43.0219	786.2403 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	2.1696 m	1.7674 m	N/A
CF2	46.0070 m	2.7808 m	N/A
CF3	234.6585 m	28.5047 u	N/A
CF4	1.3521	4.9884 m	N/A

**Note**

NA indicates not applicable

