

## 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	44.1392	503.4000 m	N/A
RT2	10.6947	1.4502	N/A
RT3	11.5949	50.3000 m	N/A
RT4	3.5712	496.1000 m	N/A
<b>Thermal Capacitance (Joules/°C)</b>			
<b>Junction to</b>	<b>Ambient</b>	<b>Case</b>	<b>Foot</b>
CT1	1.8399	903.2755 u	N/A
CT2	2.2986	11.1911 m	N/A
CT3	120.8597 m	635.5341 m	N/A
CT4	14.3351 m	9.9311 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	5.0575	830.9496 m	N/A
RF2	8.9427	1.0946	N/A
RF3	14.6554	570.4218 m	N/A
RF4	41.3444	4.0286 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	15.7525 m	935.8087 u	N/A
CF2	82.3123 m	6.3024 m	N/A
CF3	379.8746 m	5.7626 m	N/A
CF4	1.2559	29.1935 m	N/A

**Note**

NA indicates not applicable

