

## 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	53.8025	N/A	N/A
RT2	43.3725	N/A	N/A
RT3	17.4603	N/A	N/A
RT4	5.3647	N/A	N/A
<b>THERMAL CAPACITANCE (Joules/°C)</b>			
<b>Junction to</b>	<b>Ambient</b>	<b>Case</b>	<b>Foot</b>
CT1	483.6474m	N/A	N/A
CT2	221.9751m	N/A	N/A
CT3	34.0005m	N/A	N/A
CT4	2.6819m	N/A	N/A

#### 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	7.4366	N/A	N/A
RF2	23.5780	N/A	N/A
RF3	59.6050	N/A	N/A
RF4	29.3804	N/A	N/A
<b>THERMAL CAPACITANCE (Joules/°C)</b>			
<b>Junction to</b>	<b>Ambient</b>	<b>Case</b>	<b>Foot</b>
CF1	3.0426m	N/A	N/A
CF2	29.8968m	N/A	N/A
CF3	113.4501m	N/A	N/A
CF4	545.6212m	N/A	N/A

**Note**

N/A indicates not applicable

