

## 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

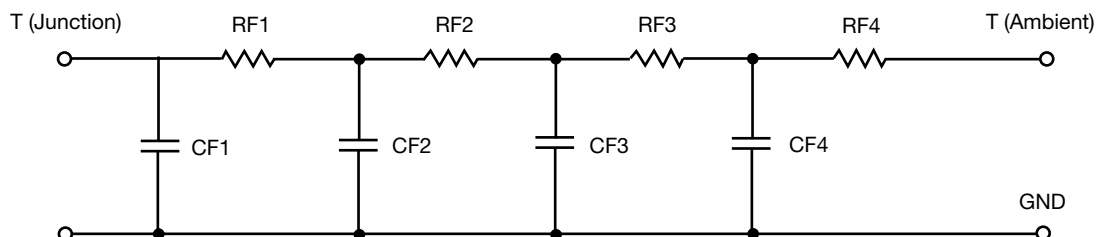


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	27.1864	322.3634 m	N/A
RT2	10.1627	151.4366 m	N/A
RT3	16.3707	4.6136	N/A
RT4	51.2802	4.4126	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	2.8362 m	73.1634 u	N/A
CT2	158.1688 u	10.6415 m	N/A
CT3	138.5922 m	70.1494 u	N/A
CT4	1.5909	358.6033 u	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	14.5834	2.7405	N/A
RF2	27.1067	4.8557	N/A
RF3	18.9512	159.5000 m	N/A
RF4	44.3587	1.7443	N/A
<b>THERMAL CAPACITANCE (Joules/°C)</b>			
<b>Junction to</b>	<b>Ambient</b>	<b>Case</b>	<b>Foot</b>
CF1	213.8179 u	32.0110 u	N/A
CF2	4.0714 m	77.9058 u	N/A
CF3	240.7028 m	542.5505 u	N/A
CF4	1.6975	15.9981 u	N/A

**Note**

N/A indicates not applicable

