

## 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	11.9104	88.6569m	N/A
RT2	3.1921	150.2498m	N/A
RT3	931.0189m	123.9151m	N/A
RT4	23.9695	37.2735m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	8.2562	346.0798m	N/A
CT2	1.0641	59.5611m	N/A
CT3	147.3202m	7.5177m	N/A
CT4	4.0108	2.4647	N/A

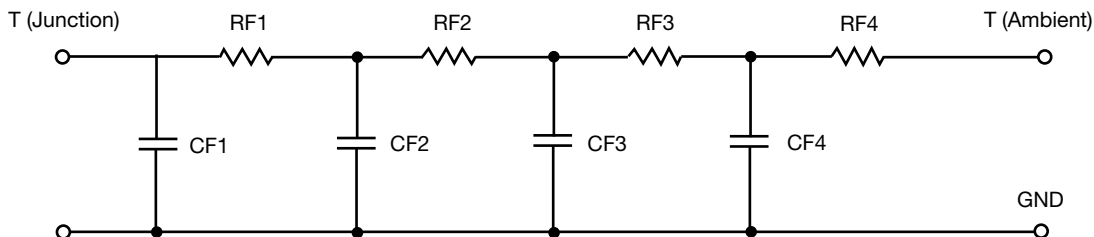
#### Note

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	884.7234m	120.5476m	N/A
RF2	6.5762	174.9986m	N/A
RF3	23.1425	94.5650m	N/A
RF4	9.4830	9.8296m	N/A
<b>THERMAL CAPACITANCE (Joules/°C)</b>			
<b>Junction to</b>	<b>Ambient</b>	<b>Case</b>	<b>Foot</b>
CF1	24.3391m	5.2012m	N/A
CF2	882.6174m	29.5430m	N/A
CF3	1.7594	338.5160m	N/A
CF4	2.6137	387.1418m	N/A

**Note**

N/A indicates not applicable

