

## 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	N/A	48.2587 m	N/A
RT2	N/A	53.8959 m	N/A
RT3	N/A	208.9367 m	N/A
RT4	N/A	138.9087 m	N/A
<b>THERMAL CAPACITANCE (Joules/°C)</b>			
<b>Junction to</b>	<b>Ambient</b>	<b>Case</b>	<b>Foot</b>
CT1	N/A	3.5253 m	N/A
CT2	N/A	34.0781 m	N/A
CT3	N/A	127.2447 m	N/A
CT4	N/A	39.7881 m	N/A

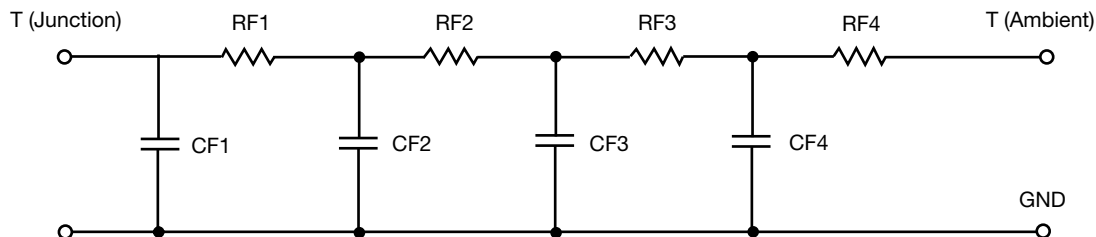
#### Note

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



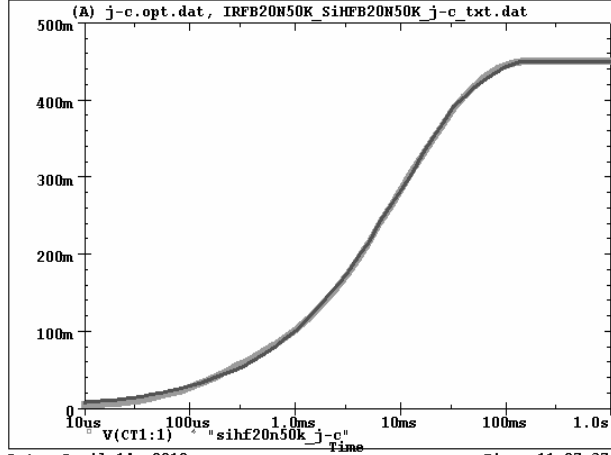
R-C VALUES FOR FILTER CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RF1	N/A	48.3692 m	N/A
RF2	N/A	196.0293 m	N/A
RF3	N/A	113.6072 m	N/A
RF4	N/A	91.9943 m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	N/A	1.7981 m	N/A
CF2	N/A	13.3340 m	N/A
CF3	N/A	52.4068 m	N/A
CF4	N/A	212.9341 m	N/A

**Note**

N/A indicates not applicable



SiHFB20N50K Tank j-c Temperature: 27.0



SiHFB20N50K Filter j-c Temperature: 27.0

