

## 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	N/A	310.8742 m	N/A
RT2	N/A	297.4052 m	N/A
RT3	N/A	134.5887 m	N/A
RT4	N/A	87.1319 m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	N/A	196.3863 m	N/A
CT2	N/A	52.5317 m	N/A
CT3	N/A	21.5920 m	N/A
CT4	N/A	3.4680 m	N/A

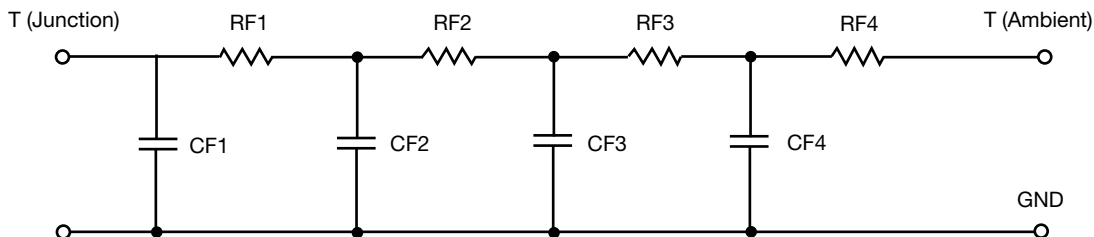
#### Note

- 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



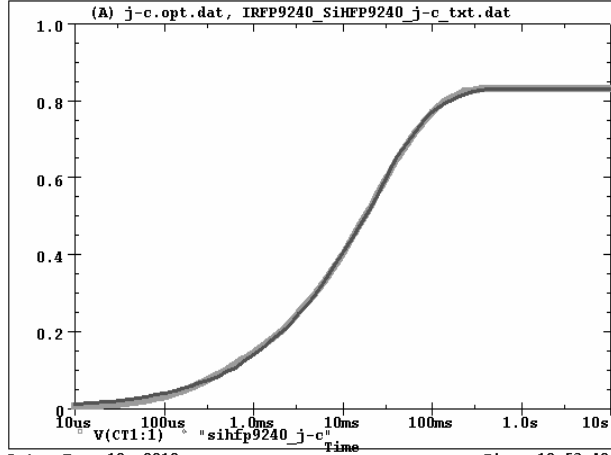
R-C VALUES FOR FILTER CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RF1	N/A	105.3322 m	N/A
RF2	N/A	272.9939 m	N/A
RF3	N/A	234.0425 m	N/A
RF4	N/A	217.6314 m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	N/A	2.0821 m	N/A
CF2	N/A	13.6646 m	N/A
CF3	N/A	30.4273 m	N/A
CF4	N/A	177.0922 m	N/A

**Note**

- N/A indicates not applicable



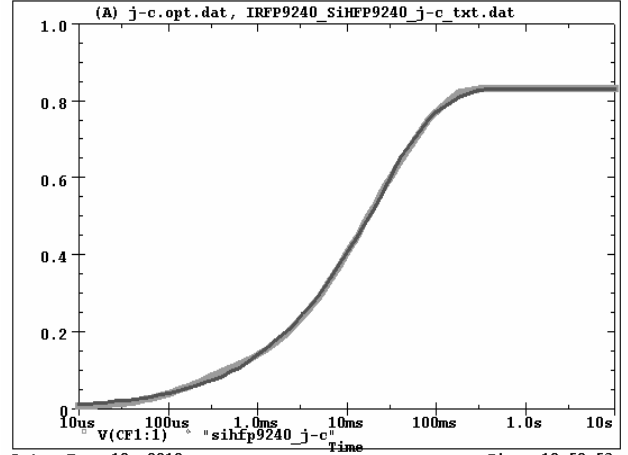
SiHFP9240 Tank j-c Temperature: 27.0



Date: June 19, 2010

Time: 19:53:40

SiHFP9240 Filter j-c Temperature: 27.0



Date: June 19, 2010

Time: 19:59:53