

## 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	14.0064	353.7407m	N/A
RT2	2.2847	341.7368m	N/A
RT3	8.0686	665.3141m	N/A
RT4	25.6927	732.5359m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	2.7125	1.3567m	N/A
CT2	7.2038m	45.9817m	N/A
CT3	126.8919m	189.2547m	N/A
CT4	3.3304	4.5834m	N/A

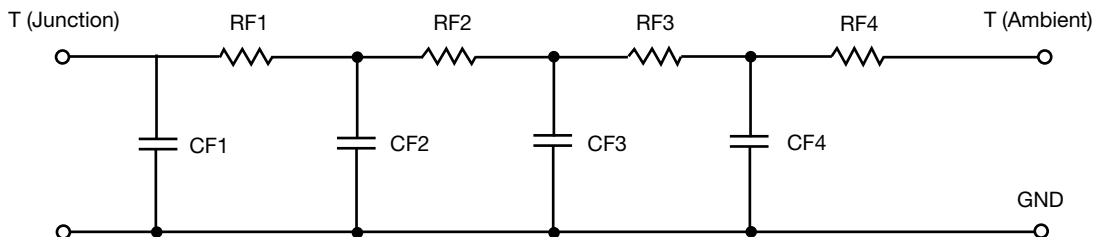
#### Note

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



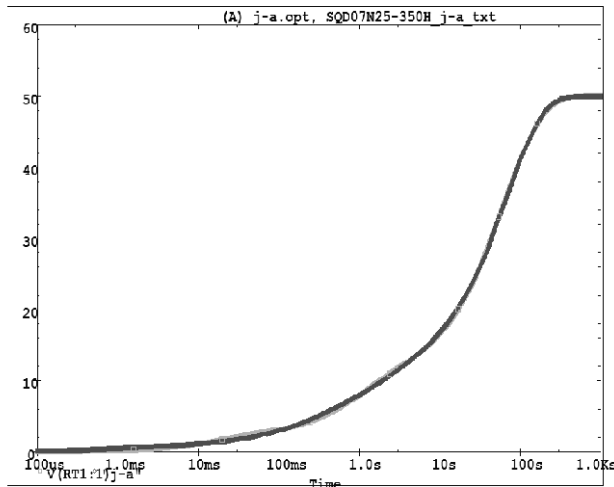
R-C VALUES FOR FILTER CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RF1	1.8341	910.8065m	N/A
RF2	8.6390	589.8666m	N/A
RF3	21.0144	93.8046m	N/A
RF4	18.5126	497.7275m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	3.5884m	1.2885m	N/A
CF2	82.0786m	16.9681m	N/A
CF3	1.1281	2.5053m	N/A
CF4	2.1144	265.9288m	N/A

**Note**

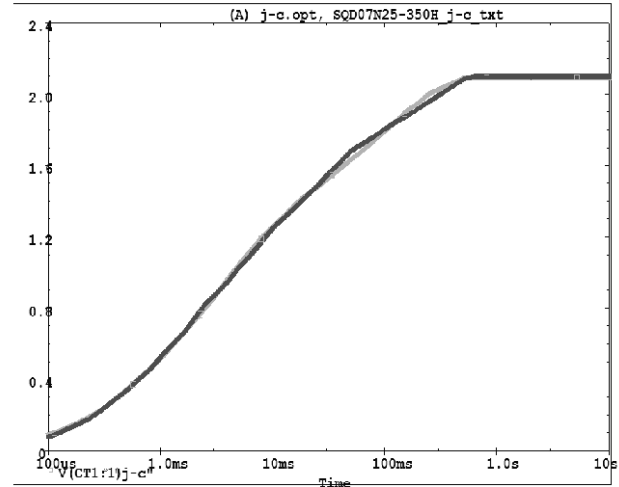
N/A indicates not applicable



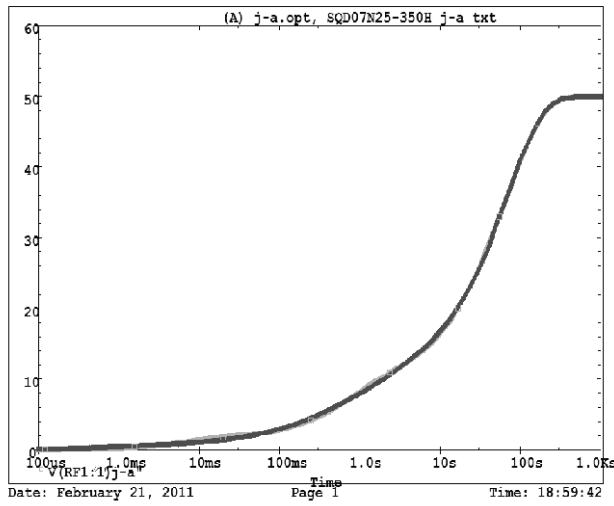
SQD07N25-350H Tank j-a Temperature: 27.0



SQD07N25-350H Tank j-c Temperature: 27.0



SQD07N25-350H Filter j-a Temperature: 27.0



SQD07N25-350H Filter j-c Temperature: 27.0

