

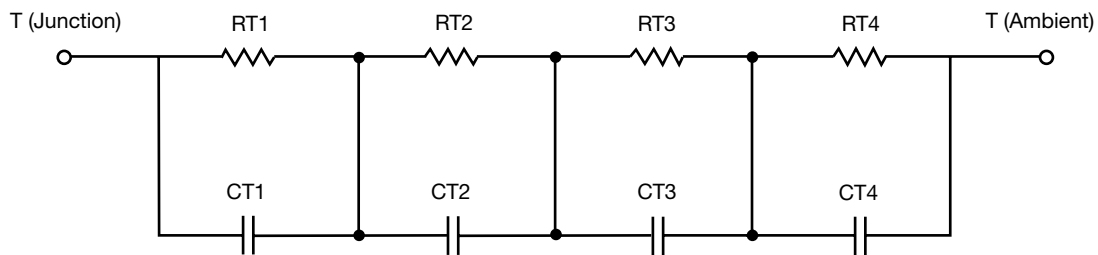
## R-C Thermal Model Parameters

### 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

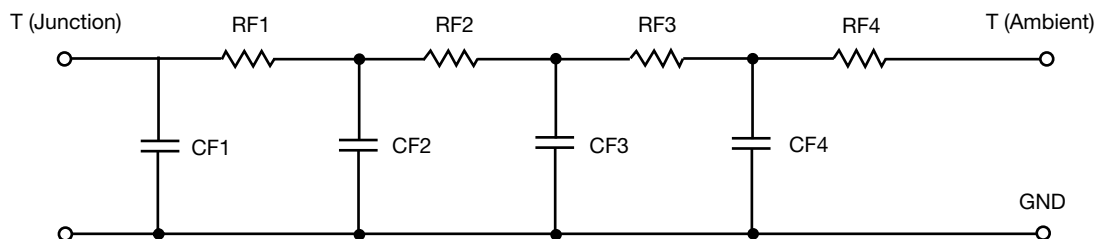


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	63.7575	N/A	16.6426
RT2	36.2988	N/A	6.4993
RT3	46.7664	N/A	5.2378
RT4	19.1773	N/A	21.6203
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.4016	N/A	13.5724 m
CT2	38.6421 m	N/A	12.5533 m
CT3	4.6896 m	N/A	727.0426 u
CT4	1.0254 m	N/A	39.7478 m

#### 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**

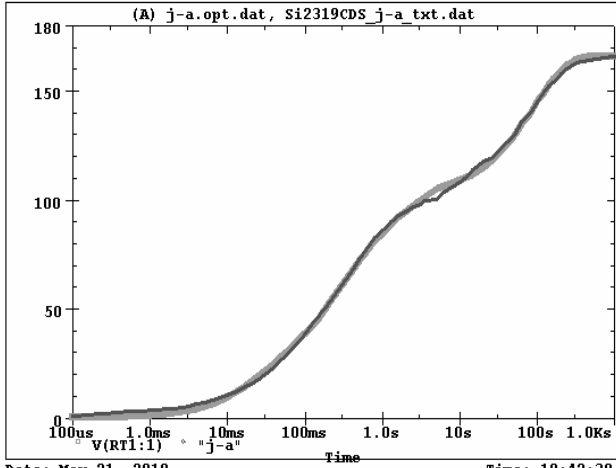
<b>R-C VALUES FOR FILTER CONFIGURATION</b>			
<b>THERMAL RESISTANCE (°C/W)</b>			
<b>Junction to</b>	<b>Ambient</b>	<b>Case</b>	<b>Foot</b>
RF1	28.6038	N/A	3.7435
RF2	60.6030	N/A	21.5608
RF3	22.8280	N/A	7.2804
RF4	53.9652	N/A	17.4153
<b>THERMAL CAPACITANCE (Joules/°C)</b>			
<b>Junction to</b>	<b>Ambient</b>	<b>Case</b>	<b>Foot</b>
CF1	815.9447 u	N/A	297.0727 u
CF2	4.5514 m	N/A	3.6318 m
CF3	237.5655 m	N/A	19.9555 m
CF4	1.5202	N/A	1.7928 m

**Note**

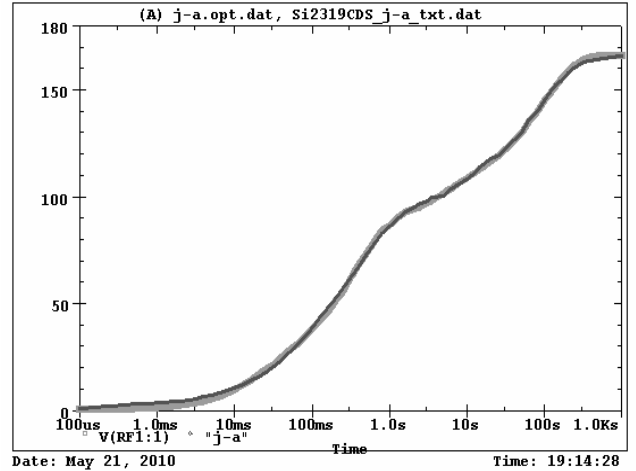
- N/A indicates not applicable



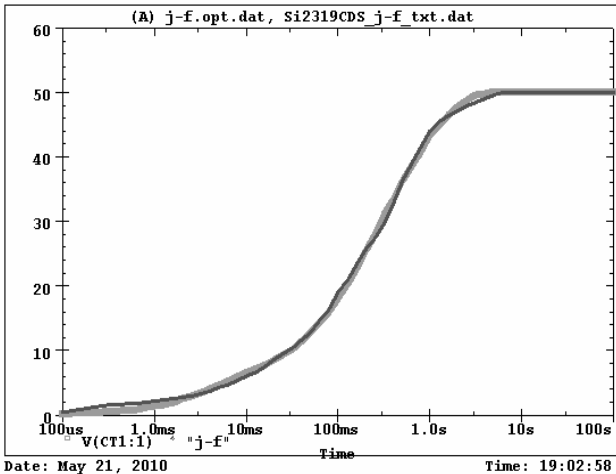
Si2319CDS Tank j-a Temperature: 27.0



Si2319CDS Filter j-a Temperature: 27.0



Si2319CDS Tank j-f Temperature: 27.0



Si2319CDS Filter j-f Temperature: 27.0

