

## R-C Thermal Model Parameters

### DESCRIPTION

The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse Transient Thermal Impedance curves for the MOSFET.

R-C values for the electrical circuit in the Foster/Tank and Cauer/Filter configurations are included.

*Note:*

*For a detailed explanation of implementing these values in P-SPICE, refer to [Application Note AN609 Thermal Simulations Of Power MOSFETs on P-SPICE Platform](#).*

### R-C THERMAL MODEL FOR TANK CONFIGURATION

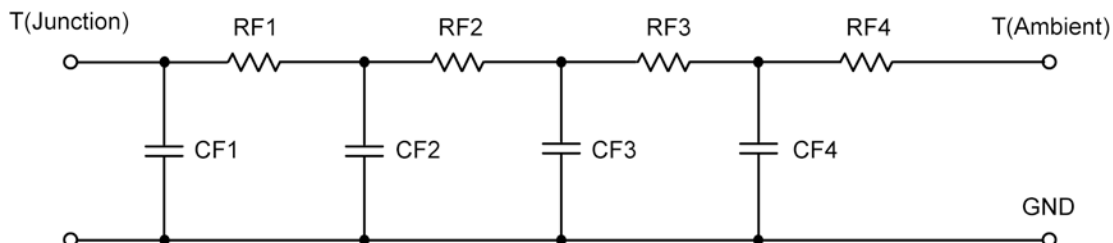


<b>R-C VALUES FOR TANK CONFIGURATION</b>			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	4.1199	N/A	N/A
RT2	40.6073	N/A	N/A
RT3	10.6474	N/A	N/A
RT4	39.6254	N/A	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	9.9208 m	N/A	N/A
CT2	4.6150	N/A	N/A
CT3	147.8636 m	N/A	N/A
CT4	603.3904 m	N/A	N/A

*This document is intended as a SPICE modeling guideline and does not constitute a commercial product data sheet. Designers should refer to the appropriate data sheet of the same number for guaranteed specification limits.*



**R-C THERMAL MODEL FOR FILTER CONFIGURATION**



<b>R-C VALUES FOR FILTER CONFIGURATION</b>			
Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RF1	4.1939	N/A	N/A
RF2	14.6561	N/A	N/A
RF3	44.5326	N/A	N/A
RF4	31.6174	N/A	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	7.4808 m	N/A	N/A
CF2	92.3194 m	N/A	N/A
CF3	439.0515 m	N/A	N/A
CF4	5.1558	N/A	N/A

Note: NA indicates not applicable

Reference:

[1] "A Simple Method of Generating Thermal Models for a Power MOSFET" by Wharton McDaniel and Kandarp Pandya. IEEE / SEMITHERM 2002

