

## R-C Thermal Model Parameters

### DESCRIPTION

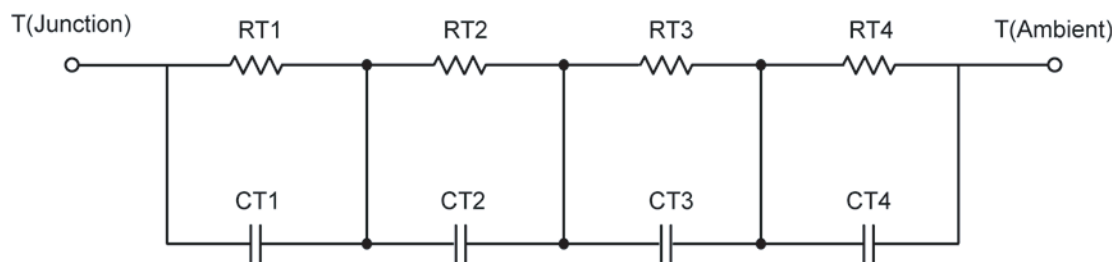
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse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

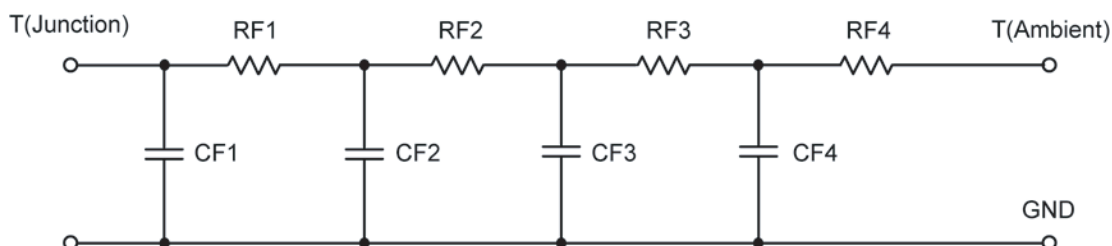
### R-C THERMAL MODEL FOR TANK CONFIGURATION



#### R-C VALUES FOR TANK CONFIGURATION

Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RT1	946.5230 m	183.0276 $\mu$	N/A
RT2	8.0656	353.5314 m	N/A
RT3	10.1483	346.7550 m	N/A
RT4	45.8518	803.7650 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	11.4890 m	606.1407 $\mu$	N/A
CT2	911.3916 m	1.9730 m	N/A
CT3	56.2065 m	46.7980 m	N/A
CT4	1.5554	23.2194 m	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 ( $^{\circ}\text{C}/\text{W}$ )			
Junction to	Ambient	Case	Foot
RF1	7.6016	102.1132 $\mu$	N/A
RF2	6.8601	472.5244 m	N/A
RF3	7.0503	437.2947 m	N/A
RF4	43.0605	586.8335 m	N/A
Thermal Capacitance (Joules/ $^{\circ}\text{C}$ )			
Junction to	Ambient	Case	Foot
CF1	24.5023 m	1.0365 m	N/A
CF2	215.8741 m	913.8278 $\mu$	N/A
CF3	5.3302 m	13.9185 m	N/A
CF4	1.2592	3.1927 m	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

