

## R-C Thermal Model Parameters

### DESCRIPTION

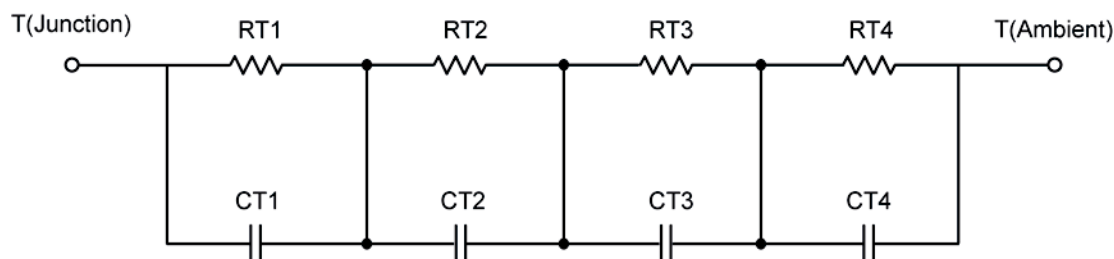
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse 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	4.7197	277.4786 m	N/A
RT2	7.7289	449.4586 m	N/A
RT3	11.8835	965.3332 m	N/A
RT4	56.6679	709.2710 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	6.6890 m	17.9558 m	N/A
CT2	33.2322 m	827.6484 u	N/A
CT3	124.9044 m	18.7678 m	N/A
CT4	1.2231	13.0328 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****R-C VALUES FOR FILTER CONFIGURATION**

Thermal Resistance (°C/W)			
Junction to	Ambient	Case	Foot
RF1	7.8652	6.1142 m	N/A
RF2	9.6907	670.9463 m	N/A
RF3	10.7974	1.0320	N/A
RF4	52.6467	691.0146 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	6.0719 m	125.4667 u	N/A
CF2	24.0473 m	695.7232 u	N/A
CF3	162.6297 m	6.0783 m	N/A
CF4	1.1300	527.9622 u	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

