



# 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 PSpice, 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 PSpice 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 PSpice Platform".

## R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	7.0404	n/a	11.1227
RT2	27.1843	n/a	3.8678
RT3	27.8855	n/a	11.4876
RT4	47.8898	n/a	8.5219
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	390.1413u	n/a	28.6919m
CT2	4.5243m	n/a	299.3103u
CT3	31.5588m	n/a	4.1990m
CT4	1.4934	n/a	6.8216m

**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	8.9373	n/a	5.3220
RF2	34.6099	n/a	19.4480
RF3	20.2723	n/a	3.8642
RF4	46.1805	n/a	6.3658
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	390.3768u	n/a	309.0180u
CF2	3.8922m	n/a	2.1366m
CF3	42.6556m	n/a	5.7175m
CF4	1.5199	n/a	52.6932m

Note

- n/a indicates not applicable

