



# 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	11.6073	1.1338	n/a
RT2	5.5097	2.2504	n/a
RT3	17.8868	307.4267m	n/a
RT4	44.9962	2.8065	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	213.8895m	158.9701u	n/a
CT2	417.2618u	1.4743m	n/a
CT3	6.5966m	14.3513m	n/a
CT4	1.7992	807.2709u	n/a

**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	5.1725	2.0306	n/a
RF2	17.9817	3.7326	n/a
RF3	12.9513	706.2037m	n/a
RF4	43.8945	60.5953m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	309.7780u	121.9753u	n/a
CF2	5.0133m	441.8929u	n/a
CF3	130.8577m	2.9534m	n/a
CF4	1.6377	2.6019	n/a

Note

- n/a indicates not applicable

