



# 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	188.1061m	127.3055m	n/a
RT2	2.5007	76.6851m	n/a
RT3	1.2266	96.1573m	n/a
RT4	36.0174	99.3052m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	396.4194u	72.4165m	n/a
CT2	1.3770	31.0760m	n/a
CT3	253.1776m	6.6282m	n/a
CT4	2.6673	9.5037m	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	446.9090m	34.8676m	n/a
RF2	2.5499	265.9741m	n/a
RF3	8.0660	40.8035m	n/a
RF4	28.8772	59.2054m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	40.0541m	1.1836m	n/a
CF2	211.6872m	3.3694m	n/a
CF3	1.4635	79.3595m	n/a
CF4	1.2208	29.5734m	n/a

Note

- n/a indicates not applicable

