



# 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	3.0463	34.4447m	n/a
RT2	18.7853	169.3300m	n/a
RT3	5.2762	98.5648m	n/a
RT4	23.8922	377.6605m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	7.5375m	141.1845m	n/a
CT2	1.1636	985.6768u	n/a
CT3	141.8082m	179.3852u	n/a
CT4	5.6540	1.8481m	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	3.4889	102.7848m	n/a
RF2	6.5420	323.6633m	n/a
RF3	24.9651	225.5762m	n/a
RF4	16.0040	27.9757m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	7.0551m	97.2389u	n/a
CF2	123.9432m	437.9126u	n/a
CF3	888.7144m	2.8252m	n/a
CF4	6.9854	84.0219m	n/a

Note

- n/a indicates not applicable

