



# 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	6.1559	746.6000m	n/a
RT2	14.7162	3.0344	n/a
RT3	17.2013	1.4784	n/a
RT4	42.9266	2.7406	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	602.5597u	1.4620m	n/a
CT2	348.6279m	14.0658m	n/a
CT3	16.9889m	140.8596u	n/a
CT4	2.1900	2.5035m	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	6.6824	2.2496	n/a
RF2	19.7485	2.9785	n/a
RF3	18.5959	1.9512	n/a
RF4	35.9732	820.7000m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	603.4429u	119.9523u	n/a
CF2	16.6061m	1.9816m	n/a
CF3	389.9565m	4.5122m	n/a
CF4	2.2443	72.6905m	n/a

Note

- n/a indicates not applicable

