



# 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	12.1809	130.7300m	n/a
RT2	4.9094	32.7600m	n/a
RT3	55.0005	613.2100m	n/a
RT4	8.9092	1.6233	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	31.8543m	279.2296m	n/a
CT2	6.3788m	83.0737m	n/a
CT3	1.3178	1.0451m	n/a
CT4	379.7157m	7.9367m	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	4.3403	816.5394m	n/a
RF2	13.7434	934.7184m	n/a
RF3	13.5322	353.6910m	n/a
RF4	49.3841	295.0413m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	3.6074m	933.8921u	n/a
CF2	17.0377m	7.1320m	n/a
CF3	273.0023m	3.0632m	n/a
CF4	1.1474	2.4880m	n/a

Note

- n/a indicates not applicable

