



# 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	9.7718	1.0760	n/a
RT2	7.1784	207.6865m	n/a
RT3	2.1037	110.3041m	n/a
RT4	30.9461	766.9351m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.9781	32.4057m	n/a
CT2	110.6268m	2.5028m	n/a
CT3	8.5897m	18.2613m	n/a
CT4	3.0565	82.2925	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	2.9877	337.7032m	n/a
RF2	7.7493	269.5147m	n/a
RF3	20.1301	764.6628m	n/a
RF4	19.1329	28.1193m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	10.7708m	2.1718m	n/a
CF2	104.7035m	24.7332m	n/a
CF3	1.1275	8.2217m	n/a
CF4	2.9541	6.0376	n/a

Note

- n/a indicates not applicable

