



# 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 P-SPICE, 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 P-SPICE 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 P-SPICE Platform".

## R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	4.0092	807.5078m	N/A
RT2	12.3969	1.3128	N/A
RT3	6.8005	357.5792m	N/A
RT4	46.4903	817.2818m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	2.0295m	760.6618u	N/A
CT2	190.6942m	6.0105m	N/A
CT3	41.1207m	36.1438m	N/A
CT4	1.3705	10.7082m	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	4.1329	1.2854	N/A
RF2	10.6111	899.8772m	N/A
RF3	23.8735	50.6532m	N/A
RF4	31.4066	1.0645	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	2.1627m	723.4129u	N/A
CF2	26.0950m	3.2106m	N/A
CF3	378.7220m	286.1746u	N/A
CF4	1.9253	1.3015m	N/A

Note

- n/a indicates not applicable

