



# 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	27.7309	N/A	7.4978
RT2	1.0069	N/A	6.9828
RT3	7.4567	N/A	5.5736
RT4	47.5182	N/A	835.5963m
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	55.6067m	N/A	196.2854m
CT2	3.4377u	N/A	6.2140m
CT3	19.4040m	N/A	184.6896m
CT4	1.3143	N/A	523.5848u

### 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	4.3975	N/A	2.3643
RF2	12.8042	N/A	6.6779
RF3	20.8335	N/A	9.4838
RF4	45.7930	N/A	2.4562
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	3.2643m	N/A	1.6512m
CF2	27.8170m	N/A	6.4792m
CF3	17.2540m	N/A	90.1945m
CF4	1.2931	N/A	364.5612m

Note

- n/a indicates not applicable

