



# 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	22.4461	531.1158m	N/A
RT2	11.4140	141.5300m	N/A
RT3	5.7260	287.2361m	N/A
RT4	25.3504	842.3180m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	2.4037	14.7039m	N/A
CT2	239.0280m	172.9924m	N/A
CT3	27.6754m	1.3015m	N/A
CT4	3.1355	24.8625m	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	5.5857	442.3921m	N/A
RF2	14.0430	879.1475m	N/A
RF3	37.6554	314.9035m	N/A
RF4	7.5993	167.1654m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	18.1573m	1.4080m	N/A
CF2	152.7772m	8.1649m	N/A
CF3	1.1222	20.9998m	N/A
CF4	6.5710	919.5373u	N/A

Note

- n/a indicates not applicable

