



# 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	3.9909	152.0067m	n/a
RT2	11.2351	1.0891	n/a
RT3	19.9408	1.0425	n/a
RT4	34.8332	616.3933m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	3.4126m	46.1350m	n/a
CT2	65.1358m	12.0632m	n/a
CT3	999.1755m	5.1482m	n/a
CT4	2.8740	886.3863u	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	4.4464	603.4647m	n/a
RF2	11.3944	809.9001m	n/a
RF3	24.2973	1.4544	n/a
RF4	29.8619	32.2352m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	3.1930m	648.9003u	n/a
CF2	53.5496m	1.1207m	n/a
CF3	535.9073m	3.8611m	n/a
CF4	2.1429	19.0378m	n/a

Note

- n/a indicates not applicable

