



# 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	23.6135	75.4444m	n/a
RT2	2.5489	253.8310m	n/a
RT3	346.6000m	5.3854m	n/a
RT4	13.491	265.3392m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	3.1213	12.6247m	n/a
CT2	638.2368m	26.5395m	n/a
CT3	6.5978m	1.4678m	n/a
CT4	10.0711	121.8433m	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	734.3000m	78.5570m	n/a
RF2	4.8184	134.4484m	n/a
RF3	21.3637	230.6396m	n/a
RF4	13.0836	156.3550m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	10.1806m	5.9457m	n/a
CF2	721.3607m	6.6331m	n/a
CF3	1.6984	13.3427m	n/a
CF4	1.7175	177.7696m	n/a

Note

- n/a indicates not applicable

