



# 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	7.4505	367.6380m	n/a
RT2	14.9309	440.9026m	n/a
RT3	31.8292	1.1672	n/a
RT4	30.9492	2.3199	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	4.5019m	19.5188	n/a
CT2	59.6682m	245.2614m	n/a
CT3	1.2165	16.8566m	n/a
CT4	2.8874	764.4761u	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	1.5954	2.5059	n/a
RF2	11.2975	1.3219	n/a
RF3	14.7143	430.6461m	n/a
RF4	57.0236	125.1593n	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	309.0440u	728.9649u	n/a
CF2	9.8066m	17.9693m	n/a
CF3	107.6592m	8.2920	n/a
CF4	933.5870m	755.9061m	n/a

Note

- n/a indicates not applicable

