



# 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	4.6888	2.9261	n/a
RT2	8.8123	2.2864	n/a
RT3	6.9242	1.1606	n/a
RT4	49.5747	2.1269	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.4572m	22.7809m	n/a
CT2	219.1461m	645.4942u	n/a
CT3	60.7413m	125.8368m	n/a
CT4	1.2740	17.3178m	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	6.3144	2.8272	n/a
RF2	14.3835	5.1673	n/a
RF3	33.8776	321.0793m	n/a
RF4	15.4245	184.4207m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	2.1686m	660.2901u	n/a
CF2	69.8983m	9.9168m	n/a
CF3	986.5264m	818.7061m	n/a
CF4	2.3200	24.9900m	n/a

Note

- n/a indicates not applicable

