



# 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	5.5861	2.6454	n/a
RT2	11.2824	839.5000m	n/a
RT3	18.0601	322.3000m	n/a
RT4	45.0714	2.6928	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	412.1730u	561.0632u	n/a
CT2	223.6858m	129.3457u	n/a
CT3	6.8135m	40.7834m	n/a
CT4	1.7857	1.3812m	n/a

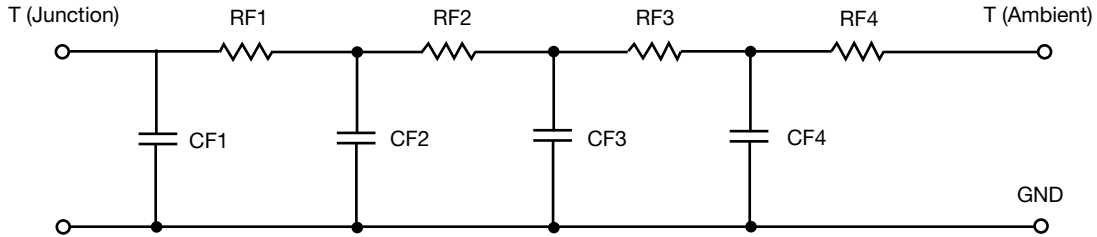
### Note

- 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	5.8076	1.3048	n/a
RF2	18.1111	3.1119	n/a
RF3	12.8981	1.6249	n/a
RF4	43.1832	458.4000m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	401.0628u	103.4466u	n/a
CF2	5.6776m	244.9423u	n/a
CF3	160.9971m	1.1505m	n/a
CF4	1.6530	3.3521m	n/a

Note

- n/a indicates not applicable

