



# 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	2.4907	141.2096m	n/a
RT2	28.3541	134.5146m	n/a
RT3	5.1756	39.3130m	n/a
RT4	13.9796	304.9628m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	9.6953m	3.4706m	n/a
CT2	3.1392	68.3943m	n/a
CT3	214.0708m	277.7320u	n/a
CT4	1.4860	11.0132m	n/a

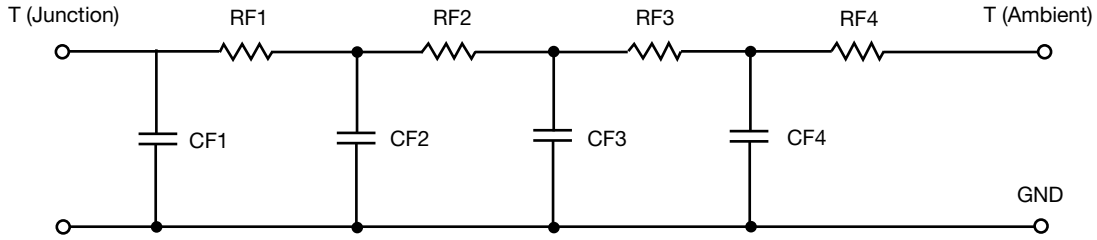
### Note

- 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	1.7396	103.5130m	n/a
RF2	7.6211	187.8606m	n/a
RF3	24.4341	266.5090m	n/a
RF4	16.2052	62.1711m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	5.5105m	660.5192u	n/a
CF2	110.4545m	3.5587m	n/a
CF3	919.0634m	5.1179m	n/a
CF4	3.4692	168.6821m	n/a

Note

- n/a indicates not applicable

