



# 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	12.7884	228.9157m	n/a
RT2	11.9388	889.8294m	n/a
RT3	3.5392	274.4752m	n/a
RT4	21.6095	5.8526m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	4.4698	2.1133m	n/a
CT2	512.2730m	15.0310m	n/a
CT3	34.9677m	50.2827m	n/a
CT4	5.2473	5.1065	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	3.6209	271.5004m	n/a
RF2	16.5996	1.0867	n/a
RF3	18.9789	29.8834m	n/a
RF4	10.4419	11.9230m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	25.7768m	1.5967m	n/a
CF2	365.9435m	9.7976m	n/a
CF3	2.5011	13.2262m	n/a
CF4	485.5316m	24.9139m	n/a

Note

- n/a indicates not applicable

