



# 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	13.4893	921.6121m	n/a
RT2	8.0413	1.0925	n/a
RT3	3.1557	524.2503m	n/a
RT4	45.1950	554.0403m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	228.1477m	11.5408m	n/a
CT2	29.4833m	11.1340m	n/a
CT3	1.5619m	1.4603m	n/a
CT4	1.5065	28.9400m	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	4.0894	1.0214	n/a
RF2	11.2307	690.4410m	n/a
RF3	15.7183	1.2606	n/a
RF4	38.8188	130.8001m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	1.7297m	1.2835m	n/a
CF2	31.9123m	4.3836m	n/a
CF3	268.4064m	1.9874u	n/a
CF4	1.4217	167.5163m	n/a

Note

- n/a indicates not applicable

