

## 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	3.9506	362.3000u	n/a
RT2	7.5613	504.3467m	n/a
RT3	12.7154	972.1139m	n/a
RT4	56.7727	923.1771m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	3.8919m	1.8890m	n/a
CT2	31.7564m	1.0443m	n/a
CT3	97.4858m	9.8777m	n/a
CT4	964.8044m	8.3660m	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	7.4585	6.0391m	n/a
RF2	9.7845	670.9463m	n/a
RF3	11.0215	1.0320	n/a
RF4	52.7355	691.0146m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	5.2003m	34.1493u	n/a
CF2	26.2263m	684.6091u	n/a
CF3	90.7826m	4.1719m	n/a
CF4	947.4231m	76.1895u	n/a

Note

- n/a indicates not applicable

