

## 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	12.5821	652.1804m	n/a
RT2	7.9952	351.4916m	n/a
RT3	2.3108	499.7919m	n/a
RT4	27.1119	596.5361m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	2.8405	217.3613m	n/a
CT2	126.8005m	26.4155m	n/a
CT3	8.8654m	14.7065m	n/a
CT4	3.0792	1.3091m	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



255.8682m

R-C VALUES FOR FILTER CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RF1	2.8888	727.0275m	n/a
RF2	7.7343	699.2495m	n/a
RF3	16.1324	237.9383m	n/a
RF4	23.2445	435.7847m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	9.8951m	1.1817m	n/a
CF2	103.4310m	7.7455m	n/a
CF3	992.1350m	71.9536m	n/a
CF4	1.6109	248.9397m	n/a

Note

- n/a indicates not applicable

