

## 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	10.0399	221.4439m	n/a
RT2	6.5735	203.3583m	n/a
RT3	2.2683	210.5859m	n/a
RT4	30.8961	466.9330m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.5026	310.7732m	n/a
CT2	337.0622m	263.4124m	n/a
CT3	18.0393m	3.3627m	n/a
CT4	3.1561	75.2744m	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	1.1950	234.8865m	n/a
RF2	3.6084	846.5175m	n/a
RF3	16.6750	11.5409m	n/a
RF4	28.2154	7.0924m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	7.8451m	3.1538m	n/a
CF2	62.7043m	48.0247m	n/a
CF3	399.2987m	8.6270	n/a
CF4	2.6213	143.0818u	n/a

Note

- n/a indicates not applicable

