

## 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	44.2622	1.1650	n/a
RT2	12.5303	2.2569	n/a
RT3	7.8282	1.4711	n/a
RT4	5.3793	107m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.6058	1.3938m	n/a
CT2	68.4859m	16.1547m	n/a
CT3	1.8503	88.1030m	n/a
CT4	2.0004m	977.3777u	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	5.5003	1.1354	n/a
RF2	15.2101	500.4734m	n/a
RF3	28.7336	2.5318	n/a
RF4	20.5560	832.3266m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	1.6917m	942.5046u	n/a
CF2	67.4375m	2.4885m	n/a
CF3	936.1385m	11.4006m	n/a
CF4	1.6821	107.1763m	n/a

Note

- n/a indicates not applicable

