

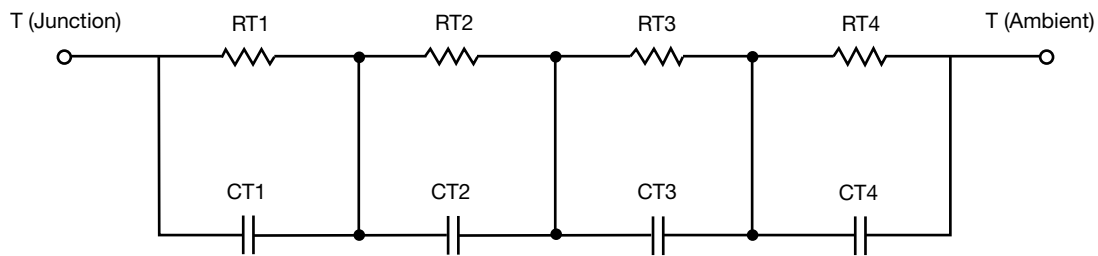
## R-C Thermal Model Parameters

### 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-Full Copper	Ambient-Minimum Copper	Foot
RT1	42.3762	57.2249	n/a
RT2	4.7302	37.9952	n/a
RT3	21.3992	49.7649	n/a
RT4	31.4944	45.0150	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient-Full Copper	Ambient-Minimum Copper	Foot
CT1	384.1339u	3.0041m	n/a
CT2	148.9593u	864.6972u	n/a
CT3	8.4963m	24.9824m	n/a
CT4	937.6633m	514.6120m	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-Full Copper	Ambient-Minimum Copper	Foot
RF1	5.9804	25.0876	n/a
RF2	45.1353	63.6070	n/a
RF3	17.9769	55.6708	n/a
RF4	30.9074	45.6346	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient-Full Copper	Ambient-Minimum Copper	Foot
CF1	76.2903u	471.2922u	n/a
CF2	283.8795u	734.4863u	n/a
CF3	10.1347m	11.9946m	n/a
CF4	943.7610m	423.1494m	n/a

Note

- n/a indicates not applicable

