



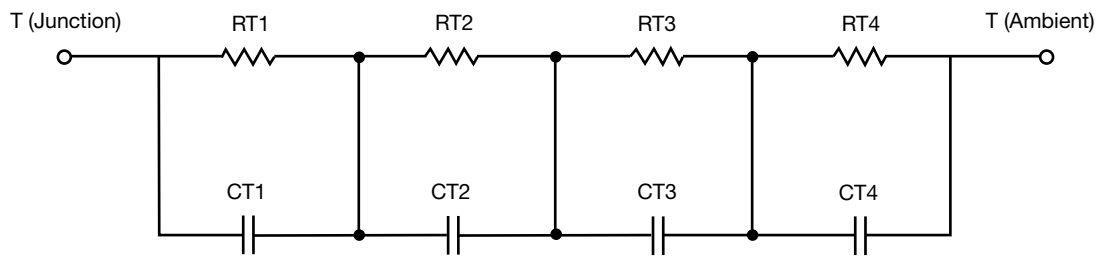
# R-C Thermal Model Parameters

## 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	15.2607	20.2237	n/a
RT2	15.5733	165.9070	n/a
RT3	15.1991	67.4889	n/a
RT4	38.9669	76.3804	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient Full Copper	Ambient Minimum Copper	Foot
CT1	1.3936m	451.8651u	n/a
CT2	19.5268m	601.1131m	n/a
CT3	1.2509	5.7317m	n/a
CT4	2.8989	206.4490m	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	17.3115	20.5239	n/a
RF2	13.9592	71.8171	n/a
RF3	25.9401	110.1774	n/a
RF4	27.7892	127.4816	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient Full Copper	Ambient Minimum Copper	Foot
CF1	1.2860m	327.8095u	n/a
CF2	19.6906m	4.8784m	n/a
CF3	784.2199m	140.6470m	n/a
CF4	3.0386	551.5245m	n/a

Note

- n/a indicates not applicable

