

## 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 P-SPICE, 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 P-SPICE 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 P-SPICE Platform".

### R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	22.1140	N/A	10.3943
RT2	2.9957	N/A	1.2547
RT3	11.3397	N/A	8.3958
RT4	48.4424	N/A	4.8944
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	77.8098m	N/A	82.4085m
CT2	470.5097u	N/A	569.4211u
CT3	25.2446m	N/A	6.8703m
CT4	1.2741	N/A	64.7263m

#### 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	5.1913	N/A	2.7767
RF2	18.7250	N/A	10.4858
RF3	16.0713	N/A	6.4638
RF4	44.8903	N/A	5.2574
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	1.9456m	N/A	2.5834m
CF2	21.5253m	N/A	3.6909m
CF3	84.1482m	N/A	40.1839m
CF4	1.2519	N/A	66.6640m

**Note**

N/A indicates not applicable

