



# 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	8.7531	N/A	7.4358
RT2	35.9464	N/A	22.0171
RT3	22.4696	N/A	9.0894
RT4	57.5439	N/A	6.4666
THERMAL CAPACITANCE (JOULES/°C)			
Junction to	Ambient	Case	Foot
CT1	236.2042u	N/A	207.8555u
CT2	2.3885m	N/A	1.5731m
CT3	67.7502m	N/A	9.7132m
CT4	1.6059	N/A	336.8655m

### 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	10.9526	N/A	9.8523
RF2	35.4357	N/A	27.3151
RF3	21.7894	N/A	2.9571
RF4	56.2832	N/A	4.8755
THERMAL CAPACITANCE (JOULES/°C)			
Junction to	Ambient	Case	Foot
CF1	231.5080u	N/A	185.8971u
CF2	2.0983m	N/A	1.3296m
CF3	57.6764m	N/A	104.3712m
CF4	1.5218	N/A	297.2885m

Note

- n/a indicates not applicable

