



# 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	2.1447	501.7148m	n/a
RT2	11.3346	713.9926m	n/a
RT3	13.5548	88.4975m	n/a
RT4	37.9659	495.7953m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	17.9586m	35.8176m	n/a
CT2	86.0047m	8.2099m	n/a
CT3	1.7635	281.1061u	n/a
CT4	2.1059	36.2169m	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	4.6118	100.3020m	n/a
RF2	11.9253	328.0296m	n/a
RF3	21.5996	855.6208m	n/a
RF4	26.8633	516.0476m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	17.8121m	628.6044u	n/a
CF2	96.6687m	4.0159m	n/a
CF3	780.1162m	1.5903m	n/a
CF4	1.5875	16.9213m	n/a

Note

- n/a indicates not applicable

