



# 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	26.0027	318.1003m	N/A
RT2	11.6687	600.1494m	N/A
RT3	6.2865	508.2310m	N/A
RT4	21.0026	373.7584m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	4.1486	3.6213m	N/A
CT2	248.4031m	51.0397m	N/A
CT3	20.7734m	89.5726m	N/A
CT4	2.0021	113.0611m	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	8.2630	325.4263m	N/A
RF2	13.4422	1.0346	N/A
RF3	19.6650	431.6093m	N/A
RF4	23.3725	9.8213m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	21.0416m	2.5636m	N/A
CF2	220.0305m	18.4869m	N/A
CF3	927.0646m	43.2967m	N/A
CF4	1.8875	2.6109	N/A

Note

- n/a indicates not applicable

