



# 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	55.6663	1.5139	n/a
RT2	13.1631	1.4449	n/a
RT3	10.9877	1.1782	n/a
RT4	4.6814	1.3630	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.3178	8.1202m	n/a
CT2	214.6190m	1.9492m	n/a
CT3	15.9330m	179.0822m	n/a
CT4	1.1096m	754.9573u	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	6.0643	1.4826	n/a
RF2	11.3571	2.2520	n/a
RF3	16.3713	1.2960	n/a
RF4	50.7970	469.4122m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	1.0461m	418.5399u	n/a
CF2	15.9977m	833.9905u	n/a
CF3	179.3335m	28.3011m	n/a
CF4	1.2561	1.4371	n/a

Note

- n/a indicates not applicable

