



# 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	3.2592	10.0671m	n/a
RT2	15.8928	504.4329m	n/a
RT3	10.3153	1.2795	n/a
RT4	51.5835	1.0060	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	3.4590m	64.1598m	n/a
CT2	16.6771m	238.3244u	n/a
CT3	247.3893m	8.0338m	n/a
CT4	1.3592	3.2198m	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	7.1070	86.7296m	n/a
RF2	13.9178	787.9469m	n/a
RF3	12.0615	1.1041	n/a
RF4	47.9137	821.2235m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	3.4021m	10.8381u	n/a
CF2	17.5999m	416.8515u	n/a
CF3	172.6080m	3.2224m	n/a
CF4	1.2705	183.8140u	n/a

Note

- n/a indicates not applicable

