



# 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	4.4181	856.5026m	n/a
RT2	13.5671	843.9967m	n/a
RT3	11.4054	60.2890m	n/a
RT4	40.6094	239.2117m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	5.3046m	59.8872m	n/a
CT2	70.4592m	112.5528m	n/a
CT3	1.9107	2.5360m	n/a
CT4	1.7561	7.0587m	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	5.2834	291.6300m	n/a
RF2	13.8223	205.5400m	n/a
RF3	21.8081	308.4300m	n/a
RF4	29.0862	1.1944	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	5.3184m	3.2846m	n/a
CF2	60.5172m	20.8250m	n/a
CF3	691.5932m	254.1639u	n/a
CF4	1.2192	34.0526m	n/a

Note

- n/a indicates not applicable

