



# 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	20.5255	52.3049m	n/a
RT2	2.9314	129.9414m	n/a
RT3	730.5280m	132.8732m	n/a
RT4	15.8127	84.8804m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	8.9243	12.4545m	n/a
CT2	986.7672m	77.1682m	n/a
CT3	15.2712m	455.1835m	n/a
CT4	2.8834	475.4600m	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	884.5339m	55.0647m	n/a
RF2	5.3482	120.1134m	n/a
RF3	23.8475	137.0249m	n/a
RF4	9.9198	87.7972m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	35.6624m	10.1392m	n/a
CF2	643.9625m	28.1032m	n/a
CF3	1.6397	82.5192m	n/a
CF4	16.8636	454.6363m	n/a

Note

- n/a indicates not applicable

