



# 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	n/a	132.5330m	n/a
RT2	n/a	262.4100m	n/a
RT3	n/a	101.4685m	n/a
RT4	n/a	103.5890m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	n/a	413.3156m	n/a
CT2	n/a	205.8175m	n/a
CT3	n/a	16.7705m	n/a
CT4	n/a	6.2478m	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



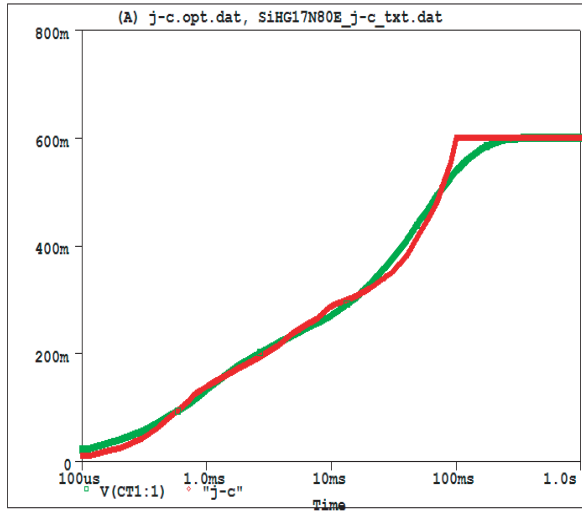
R-C VALUES FOR FILTER CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RF1	n/a	144.6969m	n/a
RF2	n/a	84.1193m	n/a
RF3	n/a	298.2518m	n/a
RF4	n/a	72.9320m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	n/a	5.3339m	n/a
CF2	n/a	1.5617m	n/a
CF3	n/a	141.1196m	n/a
CF4	n/a	20.2636m	n/a

Note

- n/a indicates not applicable



SiHG17N80E Tank j-c Temperature 27.0



SiHG17N80E Filter j-c Temperature 27.0

