

## 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 ( $\sim$ x°C/W)			
Junction to	Ambient	Case	Foot
RT1	11.9104	35.6521m	n/a
RT2	3.1921	157.7420m	n/a
RT3	931.0189m	136.1924m	n/a
RT4	23.9695	70.4392m	n/a
THERMAL CAPACITANCE (Joules/ $\sim$ x°C)			
Junction to	Ambient	Case	Foot
CT1	8.2562	207.7579m	n/a
CT2	1.0641	93.8616m	n/a
CT3	147.3202m	7.5702m	n/a
CT4	4.0108	956.4435m	n/a

#### Note

,Äçn/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	884.7234m	164.5848m	n/a
RF2	6.5762	171.0568m	n/a
RF3	23.1425	31.4611m	n/a
RF4	9.4830	32.8974m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	24.3391m	6.6462m	n/a
CF2	882.6174m	53.8870m	n/a
CF3	1.7594	626.8623m	n/a
CF4	2.6137	13.6994m	n/a

**Note**  
 n/a indicates not applicable

