



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	23.4478	50.0169m	n/a
RT2	797.1000m	157.3543m	n/a
RT3	14.6351	123.7291m	n/a
RT4	1.12	68.8997m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	7.4629	12.7568m	n/a
CT2	28.7196m	75.1826m	n/a
CT3	2.1169	434.9016m	n/a
CT4	1.6092	834.9932m	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	804m	31.6358m	n/a
RF2	2.0816	93.3162m	n/a
RF3	21.3247	175.4962m	n/a
RF4	15.7897	99.5518m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	17.7230m	7.1603m	n/a
CF2	551.1173m	18.7343m	n/a
CF3	1.0762	57.7902m	n/a
CF4	8.1645	471.4502m	n/a

Note

- n/a indicates not applicable

