



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	17.1276	18.9191m	n/a
RT2	18.7934	464.7108m	n/a
RT3	3.4460	321.0623m	n/a
RT4	633.0000m	195.3078m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	6.0385	9.8699m	n/a
CT2	4.8418	19.9693m	n/a
CT3	1.0801	2.0138m	n/a
CT4	135.5474m	337.9129m	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	395.9000m	353.6830m	n/a
RF2	3.6827	130.2003m	n/a
RF3	29.4697	399.3547m	n/a
RF4	6.4517	116.7620m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	18.0023m	1.5779m	n/a
CF2	420.7831m	6.9729m	n/a
CF3	1.9529	16.6683m	n/a
CF4	6.2882	592.2272m	n/a

Note

- n/a indicates not applicable

