



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	13.9897	261.2001m	n/a
RT2	7.9004	148.5182m	n/a
RT3	2.2010	418.5213m	n/a
RT4	29.9089	371.7604m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.3643	457.3006m	n/a
CT2	109.9022m	1.2214m	n/a
CT3	20.5052m	21.6932m	n/a
CT4	3.7392	107.3177m	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	2.1623	168.2740m	n/a
RF2	8.5402	460.6606m	n/a
RF3	23.7646	206.0480m	n/a
RF4	19.5329	365.0174m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	12.2336m	1.3131m	n/a
CF2	67.3110m	17.7925m	n/a
CF3	861.7544m	342.8274u	n/a
CF4	4.8252	205.9517m	n/a

Note

- n/a indicates not applicable

