



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	11.0285	69.3234m	n/a
RT2	5.6782	261.7099m	n/a
RT3	2.2052	140.1437m	n/a
RT4	31.0881	148.8230m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.7677	568.5767u	n/a
CT2	191.2204m	5.3242m	n/a
CT3	8.2426m	44.0973m	n/a
CT4	2.5791	48.2790m	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	1.6726	71.5694m	n/a
RF2	6.9303	279.2343m	n/a
RF3	23.1134	146.0805m	n/a
RF4	18.2837	123.1158m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	4.2749m	413.8801u	n/a
CF2	116.3168m	3.1371m	n/a
CF3	800.4807m	11.1776m	n/a
CF4	3.3953	16.0943m	n/a

Note

- n/a indicates not applicable

