



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	3.4708	110.5348m	n/a
RT2	10.2297	1.2073	n/a
RT3	11.1776	1.2110	n/a
RT4	45.1291	771.1650m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.5612m	121.8716m	n/a
CT2	36.2622m	9.8915m	n/a
CT3	376.4326m	4.9869m	n/a
CT4	1.5079	823.2540u	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	4.5594	706.0182m	n/a
RF2	12.3467	1.0145	n/a
RF3	15.1258	1.5618	n/a
RF4	37.9681	17.6819m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	1.9822m	589.9758u	n/a
CF2	37.4909m	1.1506m	n/a
CF3	337.3026m	3.2924m	n/a
CF4	1.3828	119.4107m	n/a

Note

- n/a indicates not applicable

