



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	12.7762	65.4667m	n/a
RT2	3.1049	171.9230m	n/a
RT3	335m	89.8833m	n/a
RT4	23.7839	72.7270m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	8.643	158.1053m	n/a
CT2	609.9830m	3.6702m	n/a
CT3	5.6209m	23.9985m	n/a
CT4	3.5862	121.7849m	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	816.3000m	112.5933m	n/a
RF2	4.5831	152.1896m	n/a
RF3	21.2757	83.1268m	n/a
RF4	13.3249	52.0903m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	12.8066m	2.2677m	n/a
CF2	682.6968m	3.5228m	n/a
CF3	1.7099	41.5082m	n/a
CF4	1.963	3.3612m	n/a

Note

- n/a indicates not applicable

