



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	3.7442	530.3925m	n/a
RT2	56.9523	1.2247	n/a
RT3	9.8186	1.3344	n/a
RT4	14.0750	54.7830m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	3.6484m	1.4655m	n/a
CT2	1.2791	10.1844m	n/a
CT3	19.6869m	9.0971m	n/a
CT4	167.6810m	118.8799	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	1.3345	815.3453m	n/a
RF2	12.2752	925.1744m	n/a
RF3	16.5609	553.5781m	n/a
RF4	54.4453	796.9252m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	413.5986u	1.1269m	n/a
CF2	8.4311m	3.5475m	n/a
CF3	112.0996m	235.4223u	n/a
CF4	1.1969	3.3662m	n/a

Note

- n/a indicates not applicable

