



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	14.7174	118.4958m	n/a
RT2	7.3983	542.3468m	n/a
RT3	3.2678	180.5267m	n/a
RT4	28.6165	358.6307m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.5238	773.3061u	n/a
CT2	163.3126m	68.7477m	n/a
CT3	27.7054m	1.0568	n/a
CT4	4.0612	20.4283m	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	2.9723	144.6725m	n/a
RF2	8.2733	593.2759m	n/a
RF3	22.7823	202.3559m	n/a
RF4	19.9721	259.6957m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	16.6580m	898.6000u	n/a
CF2	80.5418m	15.1783m	n/a
CF3	872.5657m	119.7627m	n/a
CF4	4.4953	16.9898m	n/a

Note

- n/a indicates not applicable

