



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 P-SPICE, 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 P-SPICE 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 P-SPICE Platform".

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	14.1247	N/A	9.0638
RT2	935.1342m	N/A	5.5851
RT3	17.4325	N/A	5.9805
RT4	52.3797	N/A	321.0580m
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	187.8644m	N/A	253.8340m
CT2	2.4485u	N/A	7.3863m
CT3	26.3945m	N/A	62.5320m
CT4	1.3895	N/A	523.5850u

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	1.0130	N/A	3.2175
RF2	10.0083	N/A	6.8107
RF3	23.3599	N/A	8.9572
RF4	50.3020	N/A	1.8572
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	601.0422u	N/A	3.8568m
CF2	13.3259m	N/A	8.0937m
CF3	50.0807m	N/A	136.0392m
CF4	1.3705	N/A	67.6204m

Note

- n/a indicates not applicable

