

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	35.2848	N/A	6.9603
RT2	37.9528	N/A	16.1965
RT3	5.3702	N/A	18.9526
RT4	51.3922	N/A	27.8906
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	3.1799m	N/A	471.7862u
CT2	24.4824m	N/A	5.5445m
CT3	326.6041u	N/A	58.4070m
CT4	1.6289	N/A	13.7414m

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	22.2072	N/A	6.7684
RF2	35.4946	N/A	42.9200
RF3	22.8622	N/A	6.0652
RF4	48.7965	N/A	14.0956
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	1.0954m	N/A	220.4464u
CF2	4.3073m	N/A	3.8210m
CF3	45.9742m	N/A	27.5309m
CF4	1.6204	N/A	30.1734m

Note

N/A indicates not applicable

