

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	44.0102	N/A	N/A	
RT2	14.6915	N/A	N/A	
RT3	11.7253	N/A	N/A	
RT4	49.4509	N/A	N/A	
THERMAL CAPACITANCE (Joules/°C)				
Junction to	Ambient	Case	Foot	
CT1	236.6819m	N/A	N/A	
CT2	118.8183m	N/A	N/A	
CT3	6.6196m	N/A	N/A	
CT4	548.3538m	N/A	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	4.2407	N/A	N/A
RF2	12.2462	N/A	N/A
RF3	56.9133	N/A	N/A
RF4	46.3010	N/A	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	7.3022m	N/A	N/A
CF2	65.0402u	N/A	N/A
CF3	86.6215m	N/A	N/A
CF4	336.7984m	N/A	N/A

Note

N/A indicates not applicable

