

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	63.7575	N/A	16.6426
RT2	36.2988	N/A	6.4993
RT3	46.7664	N/A	5.2378
RT4	19.1773	N/A	21.6203
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.4016	N/A	13.4527m
CT2	38.6418m	N/A	12.5445m
CT3	4.6896m	N/A	729.0941u
CT4	1.0254m	N/A	39.9135m

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	28.6858	N/A	3.7435
RF2	60.4235	N/A	21.5608
RF3	22.8103	N/A	7.2804
RF4	52.8311	N/A	17.4153
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	816.5622u	N/A	296.5524u
CF2	4.5465m	N/A	3.6375m
CF3	233.7219m	N/A	19.9483m
CF4	1.4576	N/A	1.7920m

Note

N/A indicates not applicable

