

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	11.8681	N/A	2.9751
RT2	4.1417	N/A	2.8105
RT3	11.3454	N/A	10.0074
RT4	52.6448	N/A	207.0000 m
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	248.3681 m	N/A	24.1195 m
CT2	16.7344 m	N/A	38.8955 m
CT3	72.7785 m	N/A	138.3434 m
CT4	1.5495	N/A	4.5394 m

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	7.5161	N/A	1.2759
RF2	10.0984	N/A	5.9807
RF3	11.5373	N/A	7.9350
RF4	50.8482	N/A	808.4000 m
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	13.6614 m	N/A	7.7086 m
CF2	39.0024 m	N/A	7.8224 m
CF3	112.6139 m	N/A	128.7286 m
CF4	1.3086	N/A	3.1651

Note

N/A indicates not applicable

