

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 PSpice, 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 PSpice 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 PSpice Platform".

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	11.2747	107.8425m	N/A
RT2	3.2758	66.0681m	N/A
RT3	3.0328	198.7128m	N/A
RT4	22.5132	28.9048m	N/A
THERMAL CAPACITANCE (JOULES/°C)			
Junction to	Ambient	Case	Foot
CT1	9.4279	4.1489m	N/A
CT2	59.0728	148.5188m	N/A
CT3	416.2490m	10.6291m	N/A
CT4	3.4484	851.5517m	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	3.2892	241.6174m	N/A
RF2	12.6142	116.5744m	N/A
RF3	17.0773	40.0255m	N/A
RF4	7.0064	3.1880m	N/A
THERMAL CAPACITANCE (JOULES/°C)			
Junction to	Ambient	Case	Foot
CF1	281.5622m	3.1848m	N/A
CF2	1.7163	24.4421m	N/A
CF3	837.3986m	317.5989m	N/A
CF4	4.3802	38.7959m	N/A

Note

- n/a indicates not applicable

