

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	15.0615	261.2001m	n/a
RT2	8.1576	148.5182m	n/a
RT3	1.2725	418.5213m	n/a
RT4	29.5084	371.7604m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.2074	457.3006m	n/a
CT2	75.2574m	1.2214m	n/a
CT3	14.9782m	21.6932m	n/a
CT4	3.8793	107.3177m	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	3.6095	168.2740m	n/a
RF2	8.8357	460.6606m	n/a
RF3	23.9646	206.0480m	n/a
RF4	17.5902	365.0174m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	17.8455m	1.3131m	n/a
CF2	113.7746m	17.7925m	n/a
CF3	982.0794m	342.8274u	n/a
CF4	5.0266	205.9517m	n/a

Note

- n/a indicates not applicable

