

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	1.6085	202.9628m	n/a
RT2	9.2677	831.8710m	n/a
RT3	6.9452	94.1601m	n/a
RT4	32.1786	271.0061m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	6.3421m	2.2734m	n/a
CT2	1.6438	41.9948m	n/a
CT3	81.9262m	14.7360m	n/a
CT4	2.8561	117.8329m	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	2.8523	288.5594m	n/a
RF2	6.9704	32.1247m	n/a
RF3	11.7651	202.5601m	n/a
RF4	28.4122	876.7558m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	8.6375m	1.8538m	n/a
CF2	102.1624m	7.0132m	n/a
CF3	737.6105m	13.2897m	n/a
CF4	1.9250	12.8982m	n/a

Note

- n/a indicates not applicable

