

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	25.8898	287.9455m	n/a
RT2	7.6418	195.1642m	n/a
RT3	3.0372	461.4302m	n/a
RT4	13.3043	157.5538m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.8818	145.3709m	n/a
CT2	91.0952m	3.6741m	n/a
CT3	8.1364m	90.1020m	n/a
CT4	1.2069	574.4676m	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	2.9329	252.7583m	n/a
RF2	8.0235	771.0448m	n/a
RF3	16.3799	37.2753m	n/a
RF4	22.4116	44.6002m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	5.2627m	3.7489m	n/a
CF2	58.0744m	52.0325m	n/a
CF3	480.9773m	480.6746m	n/a
CF4	1.0716	25.8956m	n/a

Note

- n/a indicates not applicable

