



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	38.2341	845.1459m	n/a
RT2	8.8189	866.7501m	n/a
RT3	19.1796	246.8522m	n/a
RT4	1.7674	241.2518m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	3.0705	50.3210m	n/a
CT2	50.9742m	48.2441m	n/a
CT3	539.5922m	17.8575m	n/a
CT4	6.4400m	2.8926m	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	3.3816	462.5933m	n/a
RF2	10.9310	524.4610m	n/a
RF3	22.1325	322.2022m	n/a
RF4	31.5549	890.7466m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	7.8787m	2.5934m	n/a
CF2	59.5819m	13.2541m	n/a
CF3	470.0436m	4.2430m	n/a
CF4	2.9956	17.8422m	n/a

Note

- n/a indicates not applicable

