



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	3.3025	171.7000m	n/a
RT2	14.5186	1.6996	n/a
RT3	14.5113	1.2263	n/a
RT4	48.0951	2.1024	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	585.8442u	811.4596m	n/a
CT2	11.1245m	8.1765m	n/a
CT3	155.6567m	499.1007u	n/a
CT4	1.4789	5.3512m	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	3.3402	1.2127	n/a
RF2	14.9218	1.4501	n/a
RF3	16.5555	2.4147	n/a
RF4	46.1825	122.5000m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	405.0742u	330.1996u	n/a
CF2	8.5457m	1.6874m	n/a
CF3	107.5156m	2.4836m	n/a
CF4	1.4464	1.0136	n/a

Note

- n/a indicates not applicable

