



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	1.7110	460.2591m	n/a
RT2	7.3571	275.5326m	n/a
RT3	12.5501	319.7662m	n/a
RT4	32.3818	140.2449m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	18.6736m	184.1382m	n/a
CT2	87.5023m	26.7314m	n/a
CT3	1.1212	60.2684m	n/a
CT4	3.2025	954.2000u	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	2.9091	163.2527m	n/a
RF2	8.1188	556.0951m	n/a
RF3	19.9853	245.3488m	n/a
RF4	22.9868	229.8053m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	16.4391m	964.1314u	n/a
CF2	78.9706m	16.6123m	n/a
CF3	789.1051m	62.9055m	n/a
CF4	3.5001	274.4674m	n/a

Note

- n/a indicates not applicable

