



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	2.5505	698.1820m	n/a
RT2	43.2931	671.7531m	n/a
RT3	11.9872	73.2261m	n/a
RT4	12.1692	356.8387m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	8.8258m	15.1266m	n/a
CT2	1.9234	24.3307m	n/a
CT3	92.9598m	44.7410u	n/a
CT4	1.9062	2.0464m	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	2.3027	618.7437m	n/a
RF2	11.5722	443.7371m	n/a
RF3	17.2598	618.2801m	n/a
RF4	38.8653	119.2390m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	3.7491m	1.2826m	n/a
CF2	66.2754m	9.6775m	n/a
CF3	462.6869m	1.1902m	n/a
CF4	1.3535	18.1017m	n/a

Note

- n/a indicates not applicable

