



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	6.6663	280.2959m	n/a
RT2	35.7711	395.3155m	n/a
RT3	1.1263	401.7525m	n/a
RT4	6.4363	322.6361m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.1310	2.2835m	n/a
CT2	2.2793	55.0662m	n/a
CT3	4.4803m	92.6502m	n/a
CT4	66.3836m	153.0270m	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	1.2331	345.4433m	n/a
RF2	7.4171	297.3587m	n/a
RF3	12.0957	526.7690m	n/a
RF4	29.2541	230.4290m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	2.5354m	2.3097m	n/a
CF2	59.4873m	26.2003m	n/a
CF3	674.4355m	3.7945m	n/a
CF4	1.9938	52.2584m	n/a

Note

- n/a indicates not applicable

