



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	27.7309	n/a	9.4442
RT2	1.0069	n/a	6.9878
RT3	7.4567	n/a	3.2840
RT4	47.8055	n/a	1.2840
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	55.6067m	n/a	175.8715m
CT2	3.4377u	n/a	7.8202m
CT3	19.4040m	n/a	219.4821m
CT4	1.3143	n/a	1.5983m

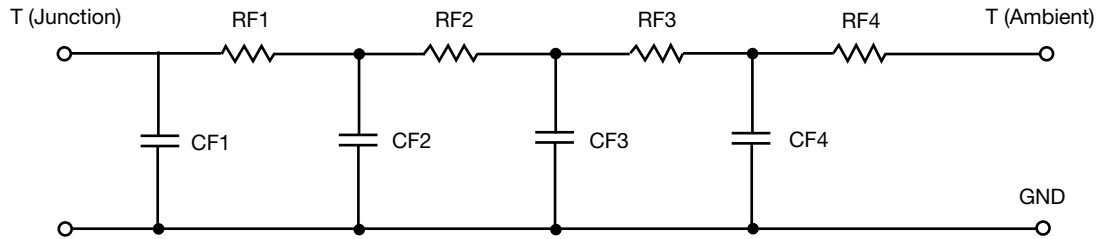
Note

- 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	4.3975	n/a	2.3646
RF2	12.8042	n/a	6.6779
RF3	20.8335	n/a	9.4838
RF4	45.9648	n/a	2.4562
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	3.3528m	n/a	1.6512m
CF2	26.7488m	n/a	6.4792m
CF3	17.9426m	n/a	90.1945m
CF4	1.2986	n/a	364.5612m

Note

- n/a indicates not applicable

