

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 P-SPICE, 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 P-SPICE 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 P-SPICE Platform".

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	11.9104	32.1016m	N/A
RT2	3.1921	177.7855m	N/A
RT3	931.0189m	132.2340m	N/A
RT4	23.9695	56.4366m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	8.2562	34.6442m	N/A
CT2	1.0641	16.1381m	N/A
CT3	147.3202m	4.9164m	N/A
CT4	4.0108	479.7688m	N/A

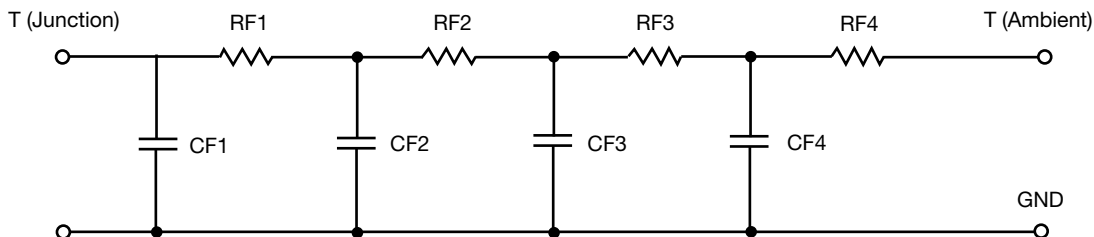
Note

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	884.7234m	167.4449m	N/A
RF2	6.5762	182.3877m	N/A
RF3	23.1425	32.9431m	N/A
RF4	9.4830	18.2995m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	24.3391m	2.7351m	N/A
CF2	882.6174m	8.4715m	N/A
CF3	1.7594	717.7574m	N/A
CF4	2.6137	38.7157m	N/A

Note

N/A indicates not applicable

