

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	125.0910m	N/A
RT2	3.1921	282.4891m	N/A
RT3	931.0189m	118.0597m	N/A
RT4	23.9695	91.8904m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	8.2562	3.7370m	N/A
CT2	1.0641	4.5999m	N/A
CT3	147.3202m	64.9388m	N/A
CT4	4.0108	125.6430m	N/A

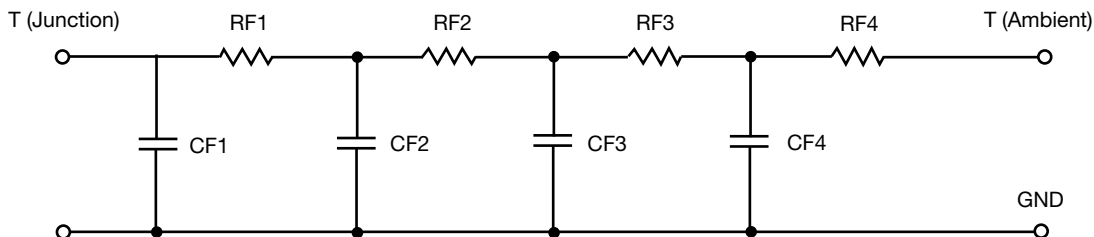
Note

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	278.9570m	N/A
RF2	6.5762	284.2462m	N/A
RF3	23.1425	38.8134m	N/A
RF4	9.4830	19.0166m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	24.3391m	1.7441m	N/A
CF2	882.6174m	7.7521m	N/A
CF3	1.7594	399.1474m	N/A
CF4	2.6137	37.8967m	N/A

Note

N/A indicates not applicable

