

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 ($^{\circ}\text{C}/\text{W}$)			
Junction to	Ambient	Case	Foot
RT1	3.0176	13.2808 m	N/A
RT2	16.2574	504.0378 m	N/A
RT3	8.4678	1.7195	N/A
RT4	57.2572	858.4943 m	N/A
THERMAL CAPACITANCE (Joules/ $^{\circ}\text{C}$)			
Junction to	Ambient	Case	Foot
CT1	58.8793 m	13.6266 m	N/A
CT2	121.8272 m	1.5840 m	N/A
CT3	6.7993 m	7.9363 m	N/A
CT4	1.3017	11.4991 m	N/A

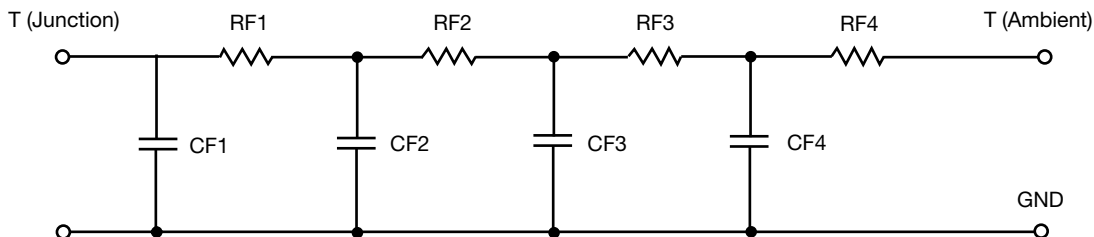
Note

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	6.9465	39.2619 u	N/A
RF2	12.9528	1.0855	N/A
RF3	16.3516	1.1237	N/A
RF4	48.5439	880.9605 m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	3.7576 m	973.8471 u	N/A
CF2	25.5233 m	413.2583 u	N/A
CF3	291.2942 m	4.4402 m	N/A
CF4	1.2252	841.2784 u	N/A

Note
N/A indicates not applicable

