

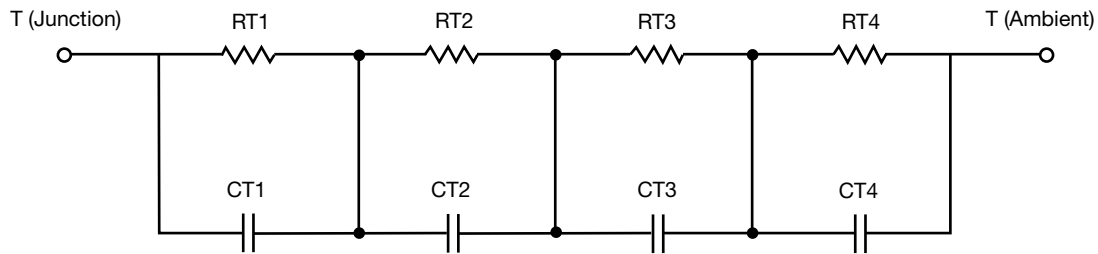
R-C Thermal Model Parameters

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	NCh-1 Ambient	NCh-2 Ambient	NCh-1 Case	NCh-2 Case
RT1	1.8464	1.8464	1.4401	189.1927m
RT2	9.2164	9.2164	599.8824m	447.3073m
RT3	16.8859	16.8859	2.5349	1.0096
RT4	57.0513	57.0513	925.1176m	1.4539
THERMAL CAPACITANCE (Joules/°C)				
Junction to	NCh-1 Ambient	NCh-2 Ambient	NCh-1 Case	NCh-2 Case
CT1	637.5899u	1.2419m	13.1661m	143.3122m
CT2	4.9696m	11.2441m	911.9265u	1.4212m
CT3	94.9133m	114.3431m	1.0314m	8.3403m
CT4	1.2862	1.3163	328.5748m	9.2651m

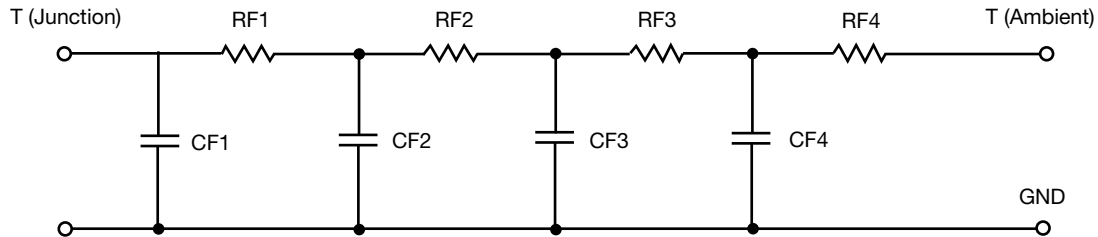
Note

- 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	NCh-1 Ambient	NCh-2 Ambient	NCh-1 Case	NCh-2 Case
RF1	8.2327	8.2327	1.4470	738.7889m
RF2	18.1837	18.1837	1.9879	958.2386m
RF3	32.3848	32.3848	1.2262	1.2698
RF4	26.1988	26.1988	838.8999m	133.1722m
THERMAL CAPACITANCE (Joules/°C)				
Junction to	NCh-1 Ambient	NCh-2 Ambient	NCh-1 Case	NCh-2 Case
CF1	1.4348m	3.9639m	406.7999u	1.0999m
CF2	42.9071m	48.5632m	711.8035u	2.7201m
CF3	860.8226m	853.8230m	12.1527m	2.7776m
CF4	1.5596	1.6980	345.9767m	80.1192m

Note

- n/a indicates not applicable

