

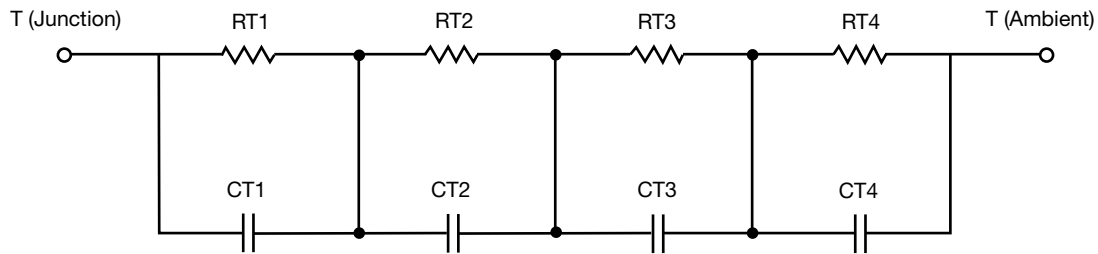
R-C Thermal Model Parameters

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	28.4613	n/a	7.1136
RT2	19.6909	n/a	10.2283
RT3	7.7408	n/a	8.1389
RT4	29.1070	n/a	2.5192
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	37.8837m	n/a	145.4475m
CT2	1.4168	n/a	77.2741m
CT3	2.8996m	n/a	8.1761m
CT4	3.0671	n/a	597.6910u

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	6.8360	n/a	1.7308
RF2	16.9942	n/a	10.0380
RF3	19.5147	n/a	12.3038
RF4	41.6524	n/a	3.9274
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	2.1005m	n/a	322.1674u
CF2	19.6569m	n/a	4.5478m
CF3	80.8943m	n/a	44.0507m
CF4	1.4607	n/a	26.8237m

Note

- n/a indicates not applicable

