



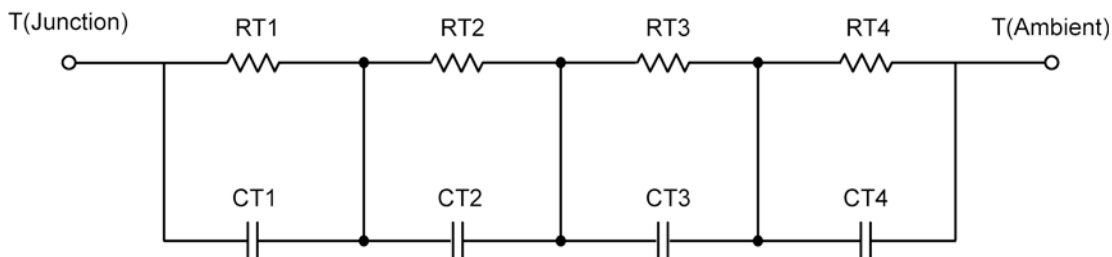
R-C Thermal Model Parameters

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 Channel 1	Ambient Channel 2	Foot Channel 1	Foot Channel 2	Case
RT1	5.1342	5.4709	14.0196	4.9410	N/A
RT2	51.8443	43.4673	2.0878	1.8908	N/A
RT3	25.4573	20.8661	6.7261	9.9947	N/A
RT4	27.5642	17.1957	19.1665	6.1735	N/A
Thermal Capacitance (Joules/°C)					
Junction to	Ambient Channel 1	Ambient Channel 2	Foot Channel 1	Foot Channel 2	Case
CT1	546.6543 u	1.9778 m	5.4907 m	1.5686 m	N/A
CT2	1.6892	2.2924	125.1567 u	150.7790 u	N/A
CT3	96.7150 m	423.1237 m	2.9095 m	7.1692 m	N/A
CT4	6.9062 m	39.2028 m	25.1931 m	121.7194 m	N/A

This document is intended as a SPICE modeling guideline and does not constitute a commercial product data sheet. Designers should refer to the appropriate data sheet of the same number for guaranteed specification limits.

R-C THERMAL MODEL FOR FILTER CONFIGURATION**R-C VALUES FOR FILTER CONFIGURATION**

Thermal Resistance ($^{\circ}\text{C}/\text{W}$)					
Junction to	Ambient Channel 1	Ambient Channel 2	Foot Channel 1	Foot Channel 2	Case
RF1	8.2157	4.9450	3.0280	3.2634	N/A
RF2	30.8633	19.3815	18.7314	10.0034	N/A
RF3	23.8998	25.9240	8.2587	6.6612	N/A
RF4	47.0212	36.7495	11.9819	3.0720	N/A
Thermal Capacitance (Joules/ $^{\circ}\text{C}$)					
Junction to	Ambient Channel 1	Ambient Channel 2	Foot Channel 1	Foot Channel 2	Case
CF1	897.7052 u	1.3054 m	177.9422 u	180.9346 u	N/A
CF2	6.8750 m	27.6878 m	1.9733 m	2.1817 m	N/A
CF3	128.7911 m	294.3022 m	7.2706 m	18.4360 m	N/A
CF4	1.7735	2.3525	29.4673 m	368.8483 m	N/A

Note: NA indicates not applicable

