



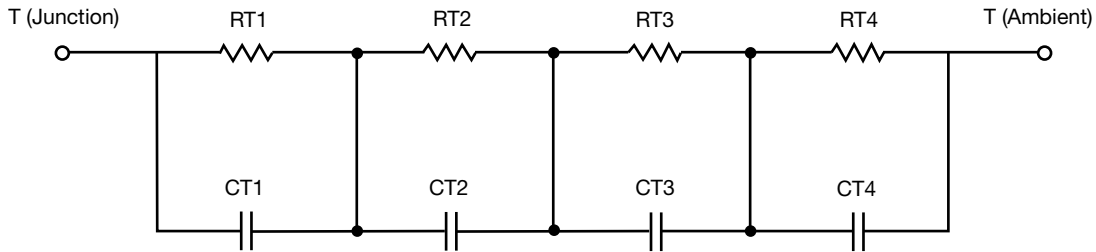
R-C Thermal Model Parameters

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		Foot		Case
	N-Channel 1	P-Channel 2	N-Channel 1	P-Channel 2	
RT1	10.3280	7.6259	8.0763	9.4898	N/A
RT2	22.7086	22.4026	10.3290	11.0847	N/A
RT3	23.9592	24.8932	4.2202	2.8456	N/A
RT4	62.9601	54.6616	17.2783	14.2536	N/A
THERMAL CAPACITANCE (Joules/°C)					
Junction to	Ambient		Foot		Case
	N-Channel 1	P-Channel 2	N-Channel 1	P-Channel 2	
CT1	1.9218m	1.9249m	6.4453m	11.3873m	N/A
CT2	24.1141m	11.9017m	14.6396m	9.1176m	N/A
CT3	58.1375m	68.9440m	437.5883u	966.5321u	N/A
CT4	1.1036	1.1941	67.5174m	97.3387m	N/A

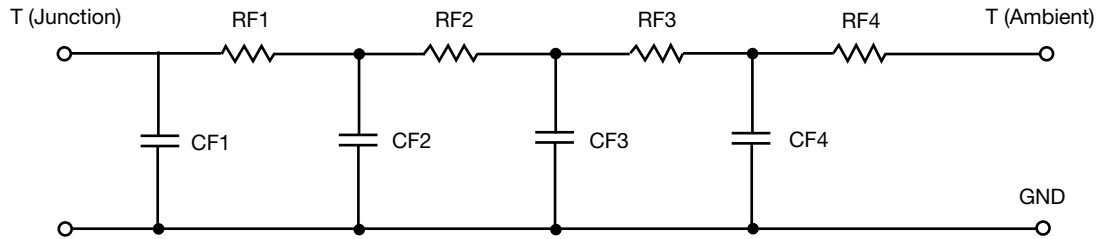
Note

- 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		Foot		Case
	N-Channel 1	P-Channel 2	N-Channel 1	P-Channel 2	
RF1	9.2582	5.0609	5.6480	4.7585	N/A
RF2	29.5120	27.7241	15.8912	17.2514	N/A
RF3	21.0891	24.2863	9.7124	8.9877	N/A
RF4	59.7776	52.4894	8.7155	6.9294	N/A
THERMAL CAPACITANCE (Joules/°C)					
Junction to	Ambient		Foot		Case
	N-Channel 1	P-Channel 2	N-Channel 1	P-Channel 2	
CF1	744.3749u	767.0424u	532.8724u	1.0619m	N/A
CF2	11.9606m	5.9953m	3.9746m	3.8193m	N/A
CF3	41.1728m	52.2578m	32.2328m	28.1164m	N/A
CF4	1.1019	1.1621	70.0065m	283.7325m	N/A

Note

- n/a indicates not applicable

