

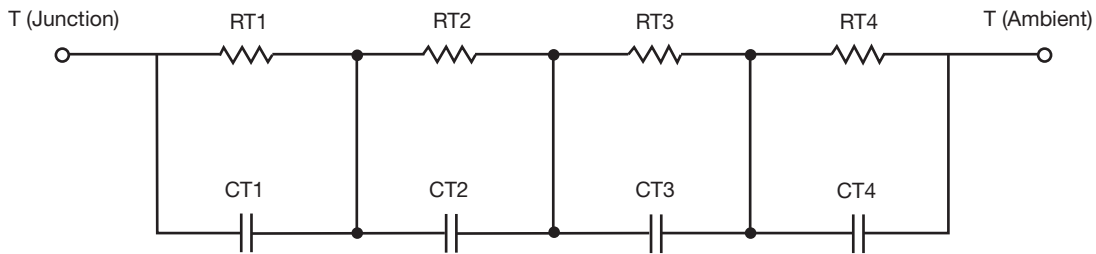
## R-C Thermal Model Parameters

### 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
	Channel 1	Channel 2	Channel 1	Channel 2	
RT1	3.6187	1.3278	984.0481m	21.7050m	n/a
RT2	56.1878	56.8626	2.0941	2.5348	n/a
RT3	10.8752	11.3432	1.9870	500.4337m	n/a
RT4	13.8307	15.0117	416.7403m	56.4861m	n/a
THERMAL CAPACITANCE (Joules/°C)					
Junction to	Ambient		Case		Foot
	Channel 1	Channel 2	Channel 1	Channel 2	
CT1	672.8300u	368.2755u	250.6360m	31.2778	n/a
CT2	1.2886	1.2862	593.2198u	4.6075m	n/a
CT3	11.2581m	10.5961m	4.0840m	1.4561m	n/a
CT4	172.1806m	147.5301m	83.2496m	1.4624	n/a

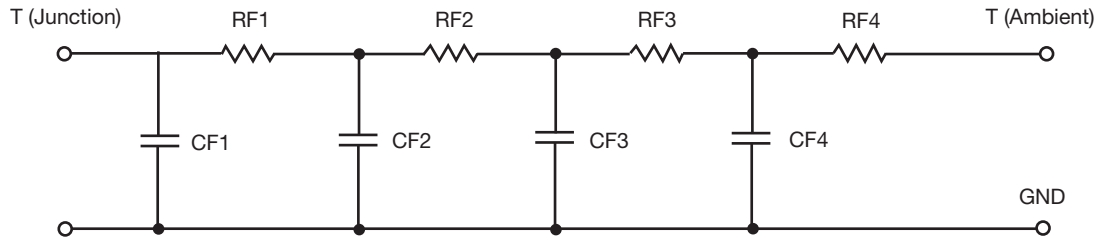
#### Note

- 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
	Channel 1	Channel 2	Channel 1	Channel 2	
RF1	3.8009	1.4105	2.0474	821.2797m	n/a
RF2	11.1424	12.8226	1.1886	1.1249	n/a
RF3	17.0347	16.2364	1.5018	1.1370	n/a
RF4	52.6020	54.2373	755.7088m	2.0002	n/a
THERMAL CAPACITANCE (Joules/°C)					
Junction to	Ambient		Case		Foot
	Channel 1	Channel 2	Channel 1	Channel 2	
CF1	570.0428u	292.4713u	492.9720u	1.1278m	n/a
CF2	8.7044m	9.1607m	899.4057u	3.9301m	n/a
CF3	129.0742m	126.9264m	9.2279m	155.2536u	n/a
CF4	1.2434	1.1791	368.9865m	202.1796	n/a

Note

- n/a indicates not applicable

