



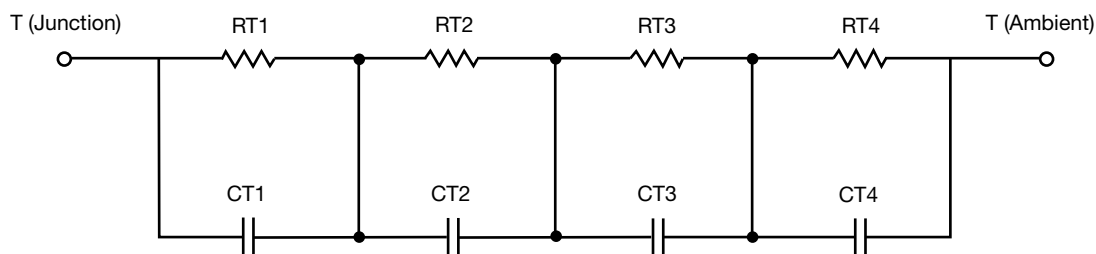
## R-C Thermal Model Parameters

### 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                               | 14.0161   | 179.7445m | n/a  |
| RT2                               | 5.0004    | 402.5508m | n/a  |
| RT3                               | 3.0673    | 200.8137m | n/a  |
| RT4                               | 27.9164   | 166.8909m | n/a  |
| THERMAL CAPACITANCE (Joules/°C)   |           |           |      |
| Junction to                       | Ambient   | Case      | Foot |
| CT1                               | 1.2358    | 366.6328u | n/a  |
| CT2                               | 203.9679m | 1.3433m   | n/a  |
| CT3                               | 14.6314m  | 3.3697m   | n/a  |
| CT4                               | 3.5737    | 24.9086m  | n/a  |

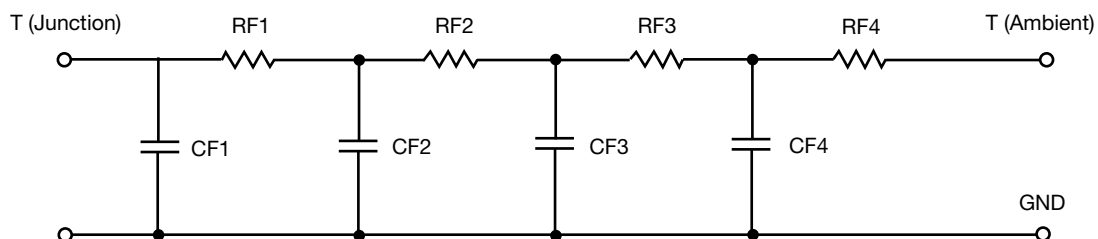
#### Note

- 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 |
| RF1                             | 3.7020    | 276.3365m | n/a  |
| RF2                             | 8.0782    | 491.3413m | n/a  |
| RF3                             | 23.2487   | 139.3801m | n/a  |
| RF4                             | 14.9710   | 42.9421m  | n/a  |
| THERMAL CAPACITANCE (Joules/°C) |           |           |      |
| Junction to                     | Ambient   | Case      | Foot |
| CF1                             | 13.8676m  | 209.8549u | n/a  |
| CF2                             | 182.2926m | 790.5329u | n/a  |
| CF3                             | 919.4650m | 8.1058m   | n/a  |
| CF4                             | 5.1976    | 74.5322m  | n/a  |

#### Note

- n/a indicates not applicable

