

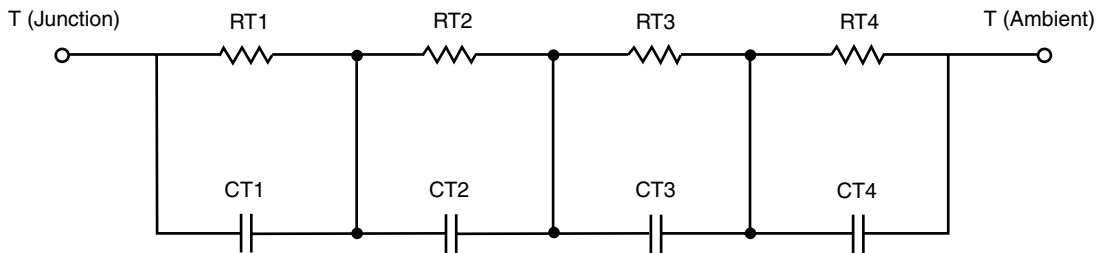
## R-C Thermal Model Parameters

### 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



| <b>R-C VALUES FOR TANK CONFIGURATION</b> |                |             |             |
|--|----------------|-------------|-------------|
| <b>THERMAL RESISTANCE (°C/W)</b>         |                |             |             |
| <b>Junction to</b>                       | <b>Ambient</b> | <b>Case</b> | <b>Foot</b> |
| RT1                                      | N/A            | 917.7500 m  | N/A         |
| RT2                                      | N/A            | 598.2000 m  | N/A         |
| RT3                                      | N/A            | 1.8542      | N/A         |
| RT4                                      | N/A            | 129.9000 m  | N/A         |
| <b>THERMAL CAPACITANCE (Joules/°C)</b>   |                |             |             |
| <b>Junction to</b>                       | <b>Ambient</b> | <b>Case</b> | <b>Foot</b> |
| CT1                                      | N/A            | 118.7943 m  | N/A         |
| CT2                                      | N/A            | 2.1686 m    | N/A         |
| CT3                                      | N/A            | 9.6739 m    | N/A         |
| CT4                                      | N/A            | 251.2953 u  | N/A         |

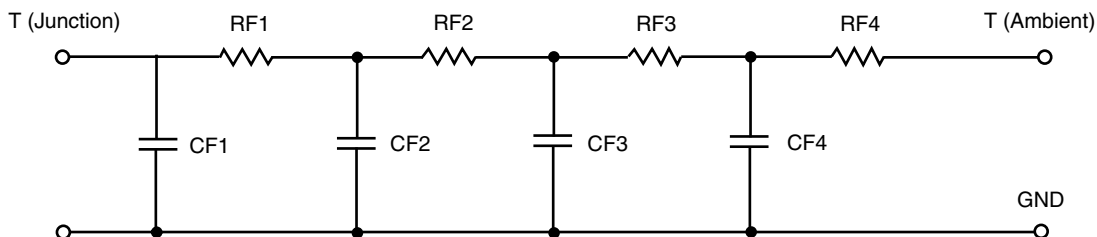
#### Note

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                                 | N/A     | 368.9562 m | N/A  |
| RF2                                 | N/A     | 845.9403 m | N/A  |
| RF3                                 | N/A     | 1.7024     | N/A  |
| RF4                                 | N/A     | 582.7035 m | N/A  |
| THERMAL CAPACITANCE (Joules/°C)     |         |            |      |
| Junction to                         | Ambient | Case       | Foot |
| CF1                                 | N/A     | 494.4644 u | N/A  |
| CF2                                 | N/A     | 2.4212 m   | N/A  |
| CF3                                 | N/A     | 8.3073 m   | N/A  |
| CF4                                 | N/A     | 165.3498 m | N/A  |

**Note**

N/A indicates not applicable

