

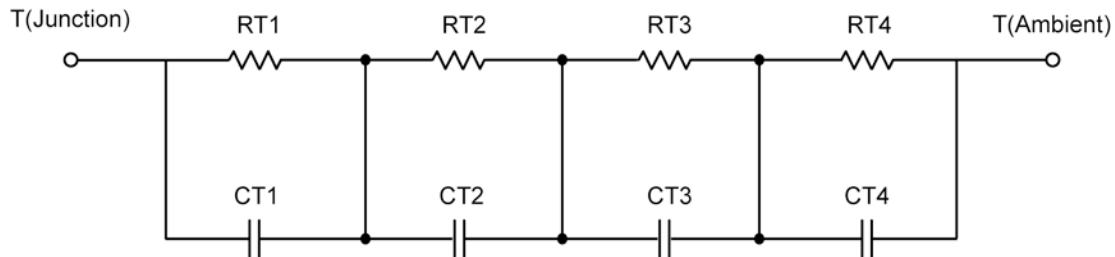
## R-C Thermal Model Parameters

### 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.

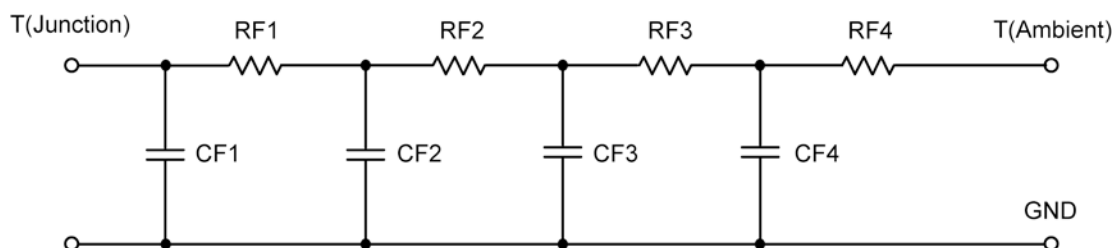
These RC values can be used in the P-SPICE simulation to evaluate the thermal behavior of the MOSFET junction temperature under a defined power profile. These techniques are described in Application Note AN609, "Thermal Simulation of Power MOSFETs on the P-Spice Platform."

### R-C THERMAL MODEL FOR TANK CONFIGURATION



| R-C VALUES FOR TANK CONFIGURATION |            |      |            |
|-----------------------------------|------------|------|------------|
| Thermal Resistance (°C/W)         |            |      |            |
| Junction to                       | Ambient    | Case | Foot       |
| RT1                               | 54.5009    | N/A  | 48.0708    |
| RT2                               | 16.2503    | N/A  | 12.9024    |
| RT3                               | 71.6229    | N/A  | 8.5959     |
| RT4                               | 77.6259    | N/A  | 30.4309    |
| Thermal Capacitance (Joules/°C)   |            |      |            |
| Junction to                       | Ambient    | Case | Foot       |
| CT1                               | 1.3049     | N/A  | 592.9211 u |
| CT2                               | 50.5531 u  | N/A  | 49.6255 u  |
| CT3                               | 9.0484 m   | N/A  | 265.2869 m |
| CT4                               | 611.4548 u | N/A  | 2.9450 m   |

*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 (°C/W)       |            |      |            |
|---------------------------------|------------|------|------------|
| Junction to                     | Ambient    | Case | Foot       |
| RF1                             | 19.4915    | N/A  | 15.1008    |
| RF2                             | 84.5646    | N/A  | 70.7894    |
| RF3                             | 62.3053    | N/A  | 628.4000 m |
| RF4                             | 53.6386    | N/A  | 13.4814    |
| Thermal Capacitance (Joules/°C) |            |      |            |
| Junction to                     | Ambient    | Case | Foot       |
| CF1                             | 47.7345 u  | N/A  | 41.1006 u  |
| CF2                             | 539.8944 u | N/A  | 492.1050 u |
| CF3                             | 9.3076 m   | N/A  | 23.3360 m  |
| CF4                             | 1.3481     | N/A  | 40.6074 m  |

**Note**

NA indicates not applicable

