



## R-C Thermal Model Parameters

### DESCRIPTION

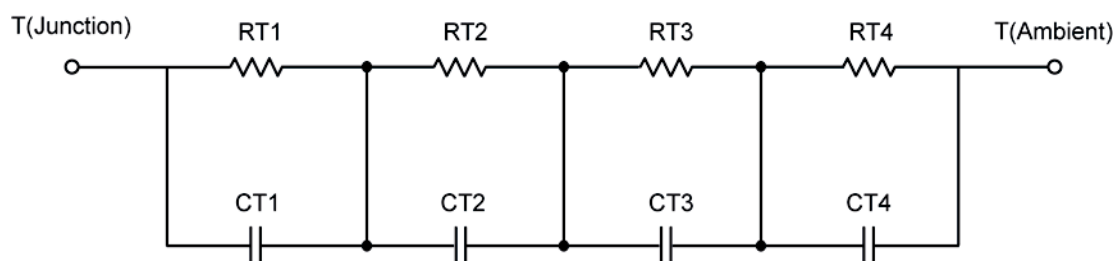
The parametric values in the R-C thermal model have been derived using curve-fitting techniques. These techniques are described in "[A Simple Method of Generating Thermal Models for a Power MOSFET](#)"[1]. When implemented in P-Spice, these values have matching characteristic curves to the Single Pulse Transient Thermal Impedance curves for the MOSFET.

R-C values for the electrical circuit in the Foster/Tank and Cauer/Filter configurations are included.

*Note:*

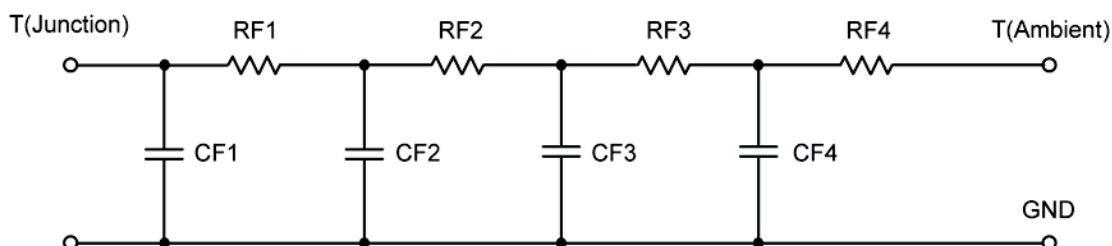
*For a detailed explanation of implementing these values in P-SPICE, refer to [Application Note AN609 Thermal Simulations Of Power MOSFETs on P-SPICE Platform](#).*

### R-C THERMAL MODEL FOR TANK CONFIGURATION



| R-C VALUES FOR TANK CONFIGURATION |            |      |      |
|-----------------------------------|------------|------|------|
| Thermal Resistance (°C/W)         |            |      |      |
| Junction to                       | Ambient    | Case | Foot |
| RT1                               | 49.2168    | N/A  | N/A  |
| RT2                               | 43.8521    | N/A  | N/A  |
| RT3                               | 57.5468    | N/A  | N/A  |
| RT4                               | 15.3843    | N/A  | N/A  |
| Thermal Capacitance (Joules/°C)   |            |      |      |
| Junction to                       | Ambient    | Case | Foot |
| CT1                               | 2.2196     | N/A  | N/A  |
| CT2                               | 33.4142 m  | N/A  | N/A  |
| CT3                               | 3.0672 m   | N/A  | N/A  |
| CT4                               | 141.9459 u | N/A  | N/A  |

*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                             | 15.6621    | N/A  | N/A  |
| RF2                             | 61.2765    | N/A  | N/A  |
| RF3                             | 39.5092    | N/A  | N/A  |
| RF4                             | 49.5522    | N/A  | N/A  |
| Thermal Capacitance (Joules/°C) |            |      |      |
| Junction to                     | Ambient    | Case | Foot |
| CF1                             | 123.5660 u | N/A  | N/A  |
| CF2                             | 2.3932 m   | N/A  | N/A  |
| CF3                             | 24.4742 m  | N/A  | N/A  |
| CF4                             | 2.0742     | N/A  | N/A  |

Note: NA indicates not applicable

## Reference:

[1] "A Simple Method of Generating Thermal Models for a Power MOSFET" by Wharton McDaniel and Kandarp Pandya, IEEE / SEMITHERM 2002

