



R-C Thermal Model Parameters

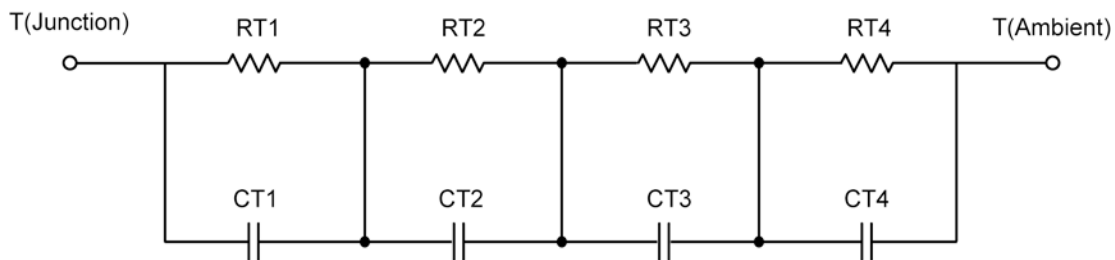
DESCRIPTION

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](#).

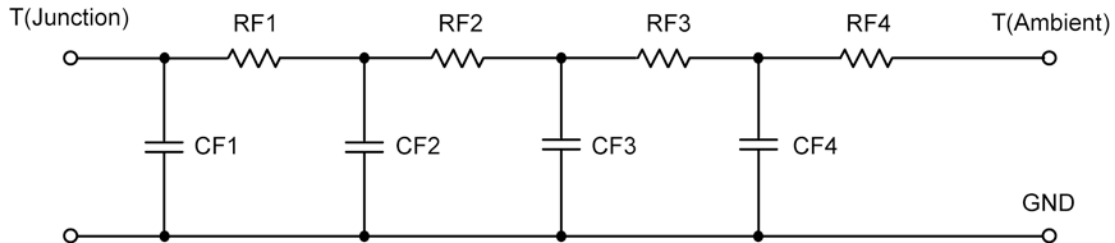
R-C THERMAL MODEL FOR TANK CONFIGURATION



| R-C VALUES FOR TANK CONFIGURATION | | | |
|-----------------------------------|------------------|-----------------|------|
| Thermal Resistance (°C/W) | | | |
| Junction to | Ambient TN0201KL | Ambient TN0201K | Foot |
| RT1 | 83.0302 | 22.4136 | N/A |
| RT2 | 8.3350 | 87.7064 | N/A |
| RT3 | 15.4197 | 105.6740 | N/A |
| RT4 | 49.2151 | 141.2060 | N/A |
| Thermal Capacitance (Joules/°C) | | | |
| Junction to | Ambient TN0201KL | Ambient TN0201K | Foot |
| CT1 | 113.8453 m | 362.4313 u | N/A |
| CT2 | 70.7201 u | 22.2747 m | N/A |
| CT3 | 11.2096 m | 1.3351 m | N/A |
| CT4 | 1.1546 | 945.5787 m | 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 TN0201KL | Ambient TN0201K | Foot |
| RF1 | 7.3612 | 53.0768 | N/A |
| RF2 | 16.7247 | 105.6782 | N/A |
| RF3 | 89.7963 | 66.6794 | N/A |
| RF4 | 42.1178 | 131.5656 | N/A |
| Thermal Capacitance (Joules/°C) | | | |
| Junction to | Ambient TN0201KL | Ambient TN0201K | Foot |
| CF1 | 48.0438 u | 366.0417 u | N/A |
| CF2 | 6.4327 m | 1.6481 m | N/A |
| CF3 | 89.2244 m | 44.3982 m | N/A |
| CF4 | 896.8272 m | 1.0049 | 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

