

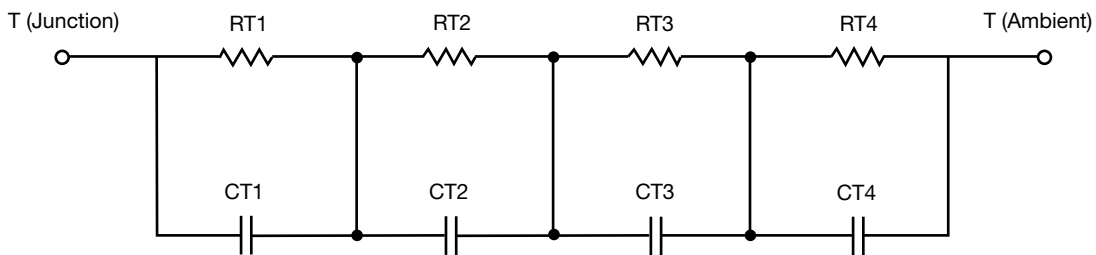
R-C Thermal Model Parameters

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 | 5.5861 | 2.6110 | N/A |
| RT2 | 11.2824 | 522.1280m | N/A |
| RT3 | 18.0601 | 416.3161m | N/A |
| RT4 | 45.0714 | 2.9641 | N/A |
| THERMAL CAPACITANCE (Joules/°C) | | | |
| Junction to | Ambient | Case | Foot |
| CT1 | 412.1713u | 383.9351u | N/A |
| CT2 | 223.6880m | 14.0350m | N/A |
| CT3 | 6.8135m | 27.3403u | N/A |
| CT4 | 1.7857 | 1.2047m | 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 | 5.8076 | 1.3048 | N/A |
| RF2 | 18.1111 | 3.1119 | N/A |
| RF3 | 12.8981 | 1.6249 | N/A |
| RF4 | 43.1832 | 458.4000m | N/A |
| THERMAL CAPACITANCE (Joules/°C) | | | |
| Junction to | Ambient | Case | Foot |
| CF1 | 400.8080u | 103.4466u | N/A |
| CF2 | 5.6722m | 244.9423u | N/A |
| CF3 | 165.5362m | 1.1505m | N/A |
| CF4 | 1.6122 | 3.3521m | N/A |

Note

N/A indicates not applicable

