



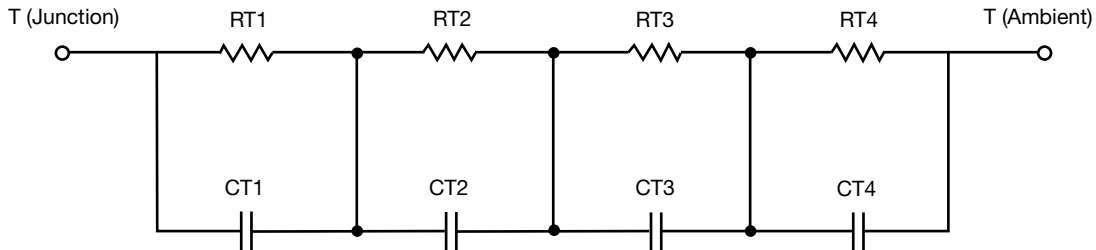
R-C Thermal Model Parameters

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 | 10.4209 | 1.6220 | N/A |
| RT2 | 3.7617 | 821.9645m | N/A |
| RT3 | 9.9207 | 775.6515m | N/A |
| RT4 | 45.8967 | 780.3840m | N/A |
| THERMAL CAPACITANCE (Joules/°C) | | | |
| Junction to | Ambient | Case | Foot |
| CT1 | 362.4129m | 4.3599m | N/A |
| CT2 | 1.8841m | 6.0480m | N/A |
| CT3 | 39.4494m | 609.5155u | N/A |
| CT4 | 1.4361 | 24.1822m | 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



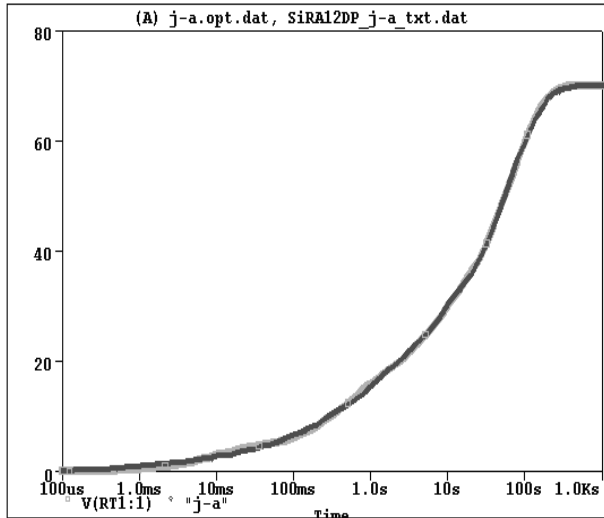
| R-C VALUES FOR FILTER CONFIGURATION | | | |
|-------------------------------------|-----------|-----------|------|
| THERMAL RESISTANCE (°C/W) | | | |
| Junction to | Ambient | Case | Foot |
| RF1 | 3.6925 | 1.4421 | N/A |
| RF2 | 11.2310 | 1.8991 | N/A |
| RF3 | 15.5297 | 622.8993m | N/A |
| RF4 | 39.5468 | 35.9007m | N/A |
| THERMAL CAPACITANCE (Joules/°C) | | | |
| Junction to | Ambient | Case | Foot |
| CF1 | 1.8311m | 576.8084u | N/A |
| CF2 | 27.3363m | 2.3513m | N/A |
| CF3 | 264.3988m | 6.5780m | N/A |
| CF4 | 1.3821 | 70.3699m | N/A |

Note

- n/a indicates not applicable

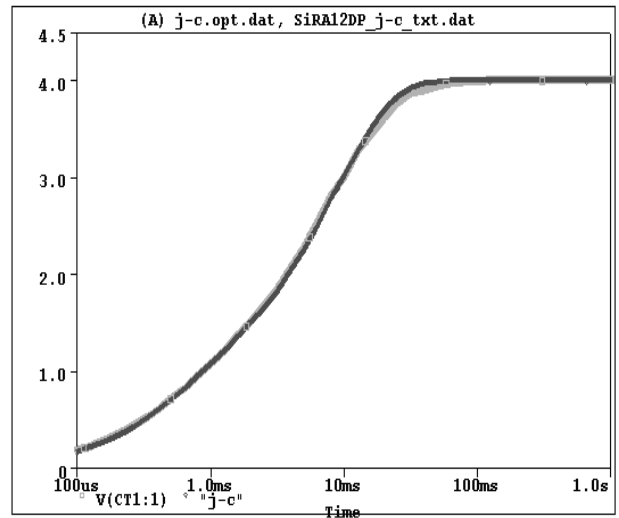


SiRA12DP Tank j-a Temperature: 27.0



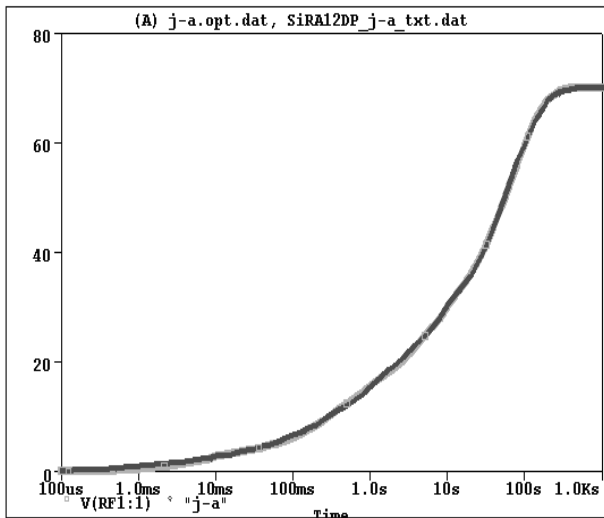
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SiRA12DP Tank j-c Temperature: 27.0



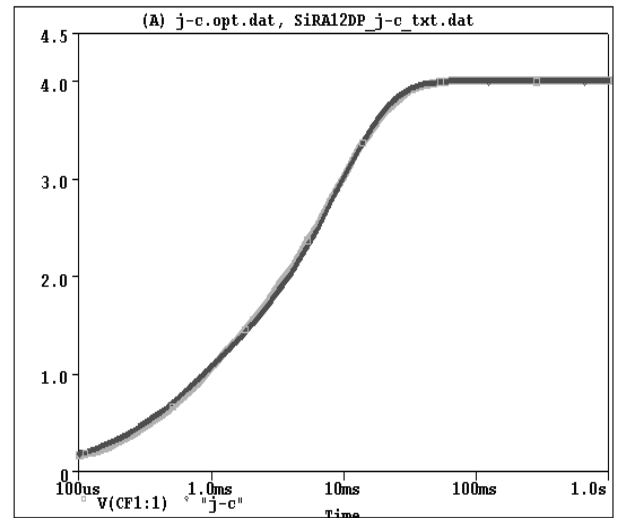
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SiRA12DP Filter j-a Temperature: 27.0



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SiRA12DP Filter j-c Temperature: 27.0



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