

Vishay Siliconix

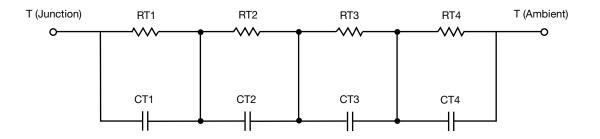
R-C Thermal Model Parameters

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 PSpice, 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 PSpice 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 PSpice Platform".

R-C THERMAL MODEL FOR TANK CONFIGURATION



| R-C VALUES FOR TANK | CONFIGURATION | | |
|----------------------------|---------------|--------------------|------|
| | THERMAL RES | SISTANCE (°C/W) | |
| Junction to | Ambient | Case | Foot |
| RT1 | n/a | 83.8450m | n/a |
| RT2 | n/a | 391.1115m | n/a |
| RT3 | n/a | 414.1953u | n/a |
| RT4 | n/a | 125.7440m | n/a |
| · | THERMAL CAPAC | ITANCE (Joules/°C) | |
| Junction to | Ambient | Case | Foot |
| CT1 | n/a | 6.1312m | n/a |
| CT2 | n/a | 141.0248m | n/a |
| CT3 | n/a | 128.8503m | n/a |
| CT4 | n/a | 14.5497m | 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.

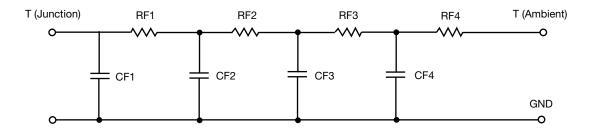
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R-C THERMAL MODEL FOR FILTER CONFIGURATION



| VALUES FOR FILTER CONFIGURATION | | | | | | |
|---------------------------------|---------------|--------------------|------|--|--|--|
| THERMAL RESISTANCE (°C/W) | | | | | | |
| Junction to | Ambient | Case | Foot | | | |
| RF1 | n/a | 55.8132m | n/a | | | |
| RF2 | n/a | 159.8584m | n/a | | | |
| RF3 | n/a | 303.4967m | n/a | | | |
| RF4 | n/a | 81.9897m | n/a | | | |
| | THERMAL CAPAC | ITANCE (Joules/°C) | | | | |
| Junction to | Ambient | Case | Foot | | | |
| CF1 | n/a | 3.4586m | n/a | | | |
| CF2 | n/a | 2.4742m | n/a | | | |
| CF3 | n/a | 131.6245m | n/a | | | |
| CF4 | n/a | 2.7758m | n/a | | | |

Note

• n/a indicates not applicable



SiHP100N60E_RC

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