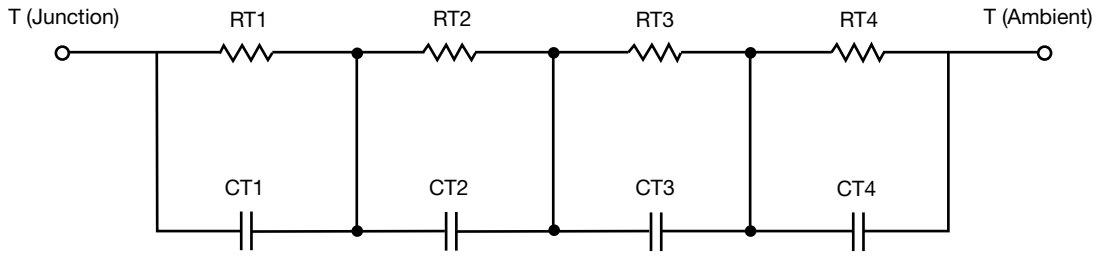
R-C Thermal Model Parameters

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 RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	n/a	11.1680m	n/a
RT2	n/a	835.8181m	n/a
RT3	n/a	1.4289	n/a
RT4	n/a	1.4241	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	n/a	3.0237	n/a
CT2	n/a	796.4774u	n/a
CT3	n/a	30.6768m	n/a
CT4	n/a	30.5317m	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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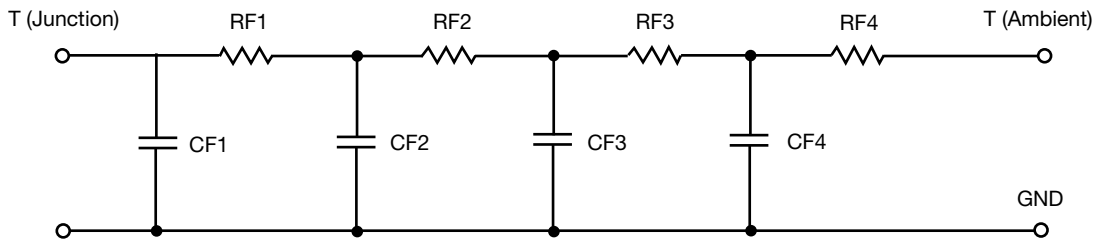
R-C THERMAL MODEL FOR FILTER CONFIGURATION



R-C VALUES FOR FILTER CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RF1	n/a	592.4298m	n/a
RF2	n/a	420.1905m	n/a
RF3	n/a	1.1672	n/a
RF4	n/a	1.5202	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	n/a	494.8631u	n/a
CF2	n/a	2.6982m	n/a
CF3	n/a	12.1723m	n/a
CF4	n/a	1.9347m	n/a

Note

- n/a indicates not applicable

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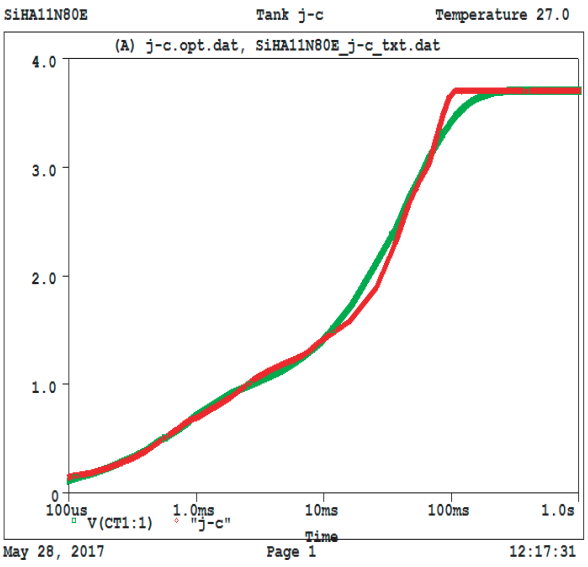

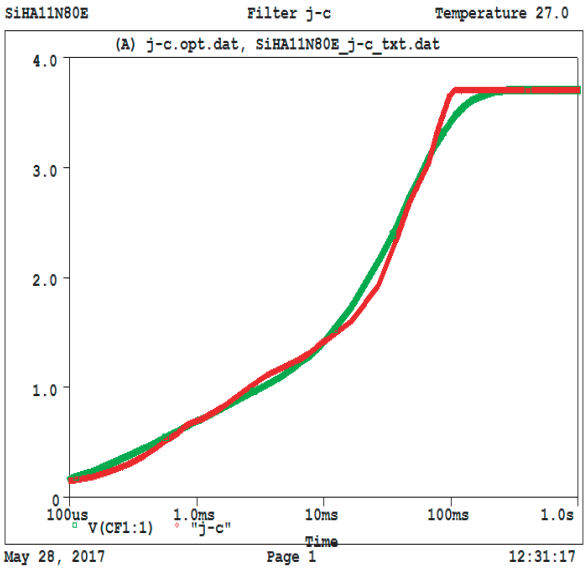

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