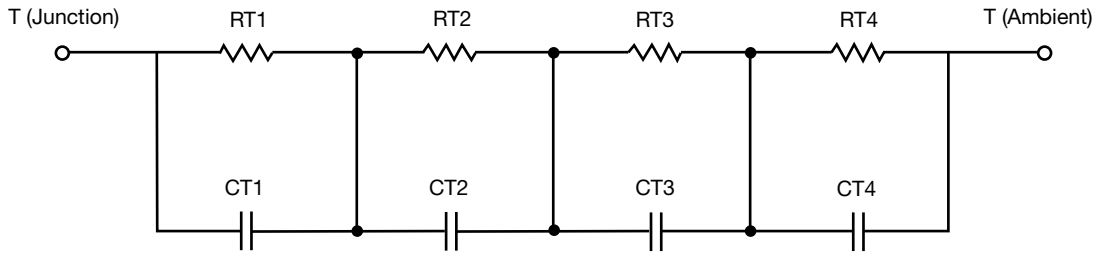
R-C Thermal Model Parameters

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	1.7563	868.1887m	n/a
RT2	9.1364	234.7165m	n/a
RT3	18.0374	237.3283m	n/a
RT4	39.0699	859.7665m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	5.0098m	40.4841m	n/a
CT2	54.5587m	16.3607m	n/a
CT3	556.5681m	3.0304m	n/a
CT4	2.9167	56.7720m	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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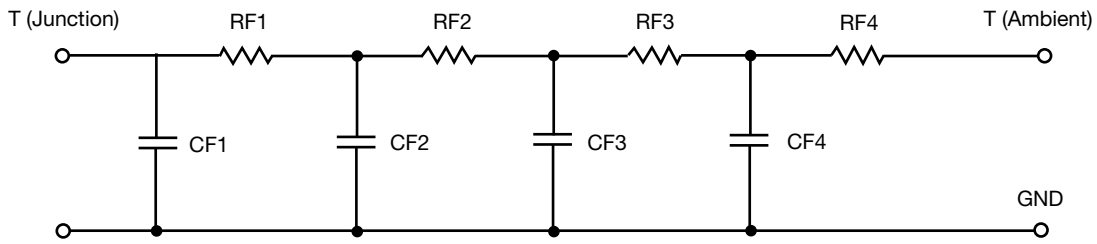
R-C THERMAL MODEL FOR FILTER CONFIGURATION



R-C VALUES FOR FILTER CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RF1	2.8781	372.6497m	n/a
RF2	10.5026	645.9432m	n/a
RF3	23.5204	660.9157m	n/a
RF4	31.0989	520.4914m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	7.5863m	2.1954m	n/a
CF2	49.6309m	9.8626m	n/a
CF3	441.5027m	21.9038m	n/a
CF4	3.2639	36.4077u	n/a

Note

- n/a indicates not applicable

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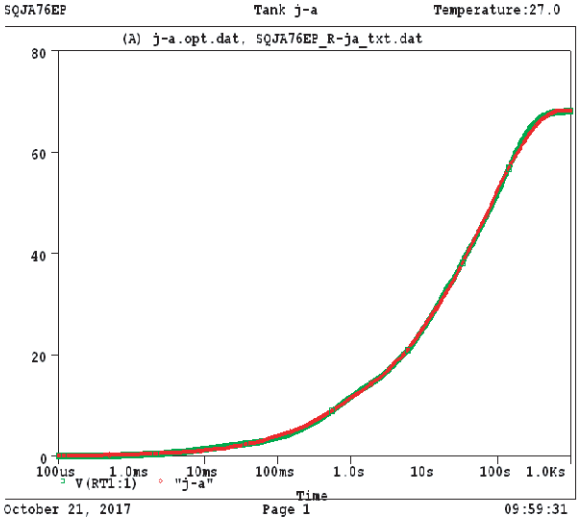

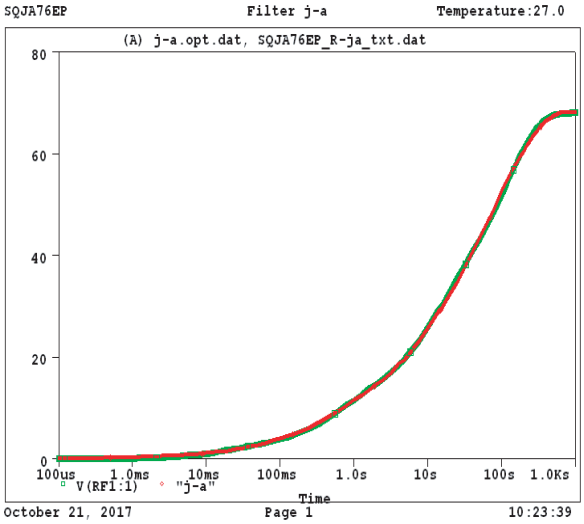

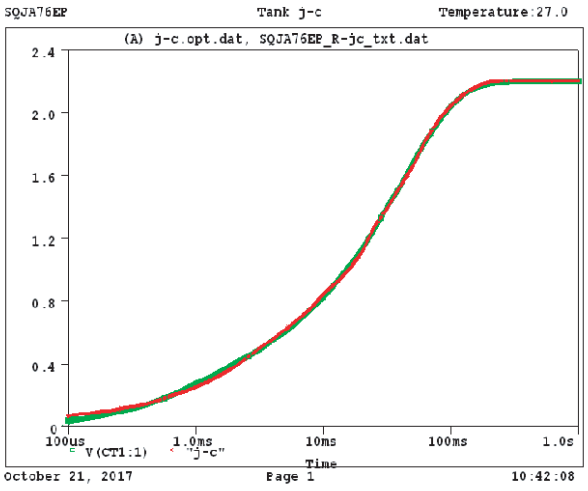

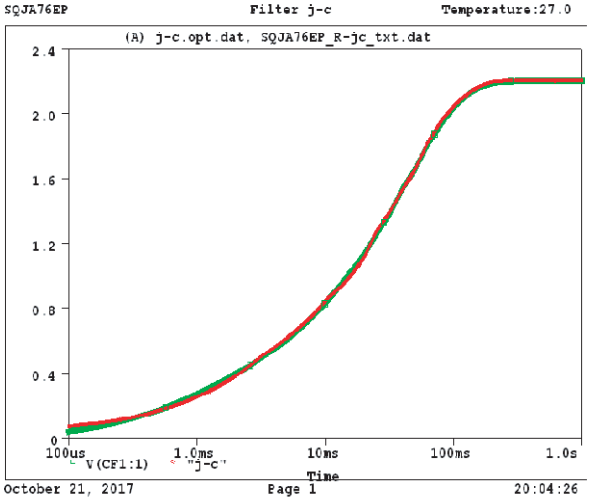

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