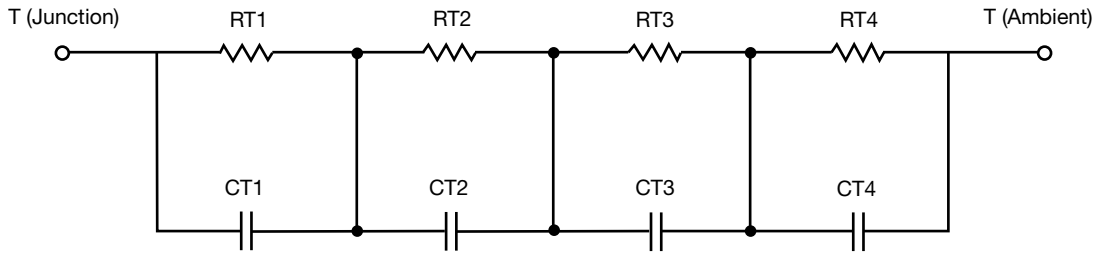
R-C Thermal Model Parameters

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	3.6037	377.0394m	n/a
RT2	29.4510	832.5018m	n/a
RT3	11.8695	265.0817m	n/a
RT4	20.0758	825.3771m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	12.8089m	5.0773m	n/a
CT2	2.9013	19.1960m	n/a
CT3	102.8720m	2.3811m	n/a
CT4	1.8350	18.8374m	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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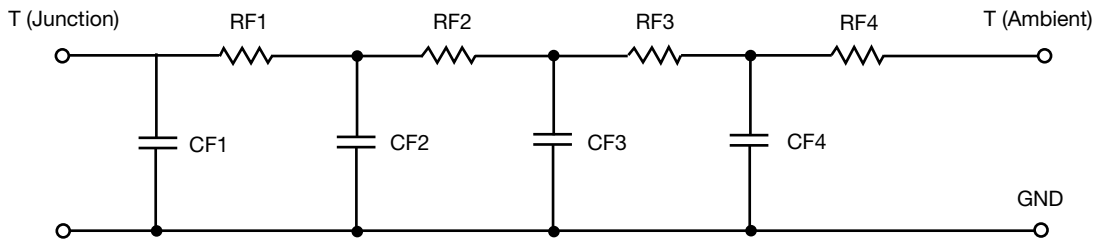
R-C THERMAL MODEL FOR FILTER CONFIGURATION



R-C VALUES FOR FILTER CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RF1	3.6557	820.0290m	n/a
RF2	10.3781	735.6631m	n/a
RF3	14.9468	357.2603m	n/a
RF4	36.0194	387.0476m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	8.2843m	1.5087m	n/a
CF2	68.1722m	7.5384m	n/a
CF3	436.1910m	2.2384m	n/a
CF4	1.4229	8.9439m	n/a

Note

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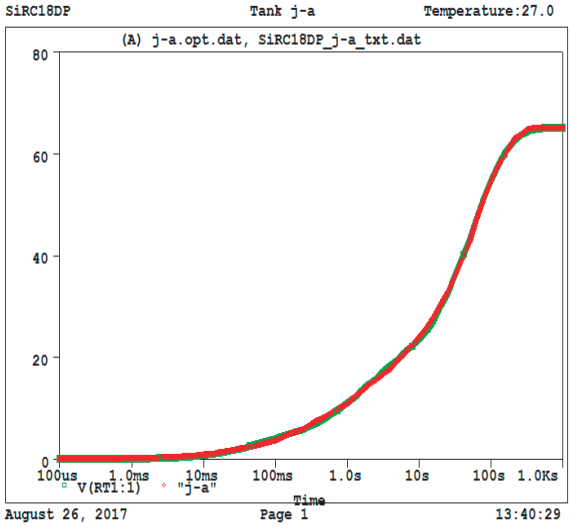

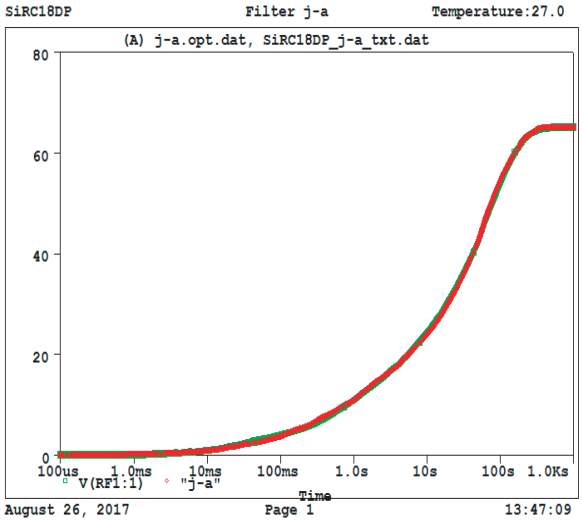

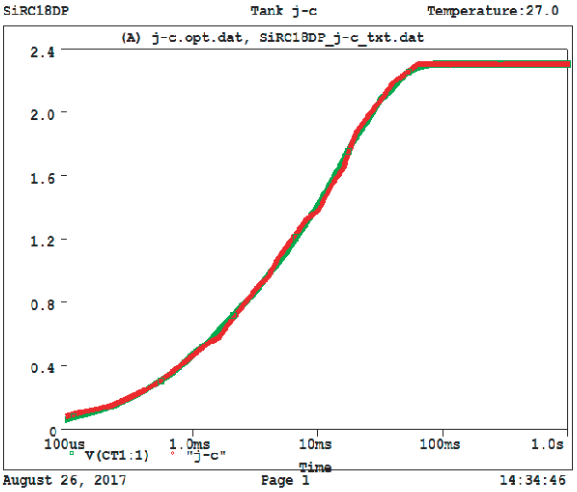

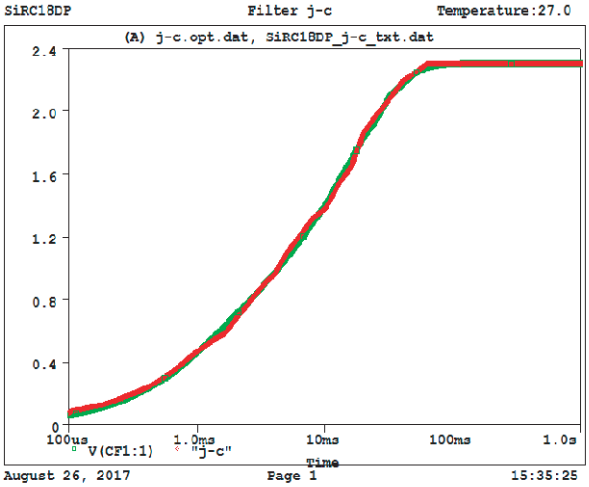

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