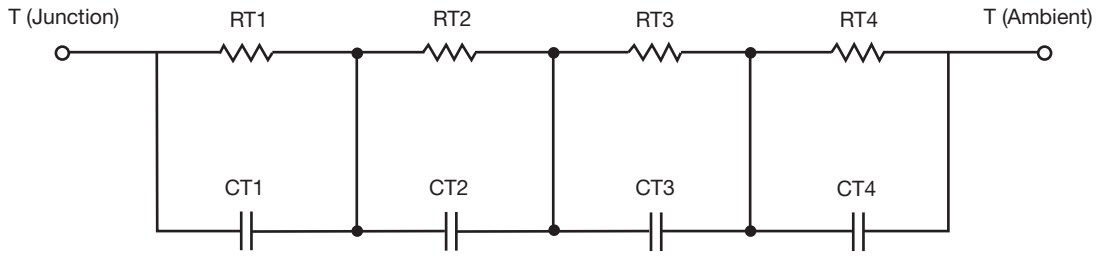
R-C Thermal Model Parameters

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	17.9705	319.5589m	n/a
RT2	5.3336	241.7848m	n/a
RT3	2.7290	136.3964m	n/a
RT4	25.8367	22.2599m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.0642	990.8849u	n/a
CT2	109.3368m	4.3060m	n/a
CT3	6.7653m	183.4148u	n/a
CT4	4.9293	286.8502m	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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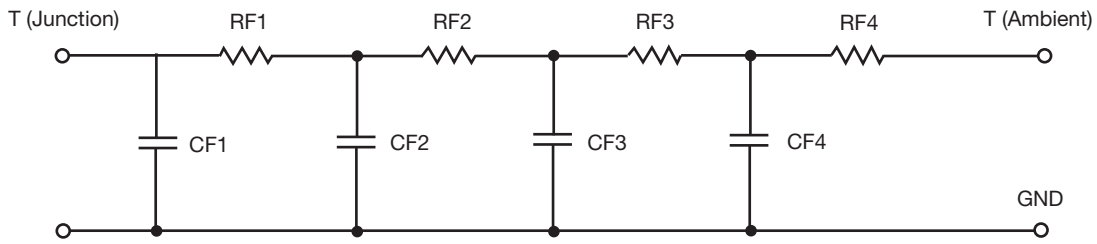
R-C THERMAL MODEL FOR FILTER CONFIGURATION



R-C VALUES FOR FILTER CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RF1	2.8867	182.9116m	n/a
RF2	6.7201	334.6556m	n/a
RF3	23.1444	119.2410m	n/a
RF4	18.8518	83.1918m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	5.2151m	155.6543u	n/a
CF2	93.6577m	555.5474u	n/a
CF3	803.2419m	2.6760m	n/a
CF4	5.1320	10.1420m	n/a

Note

- n/a indicates not applicable

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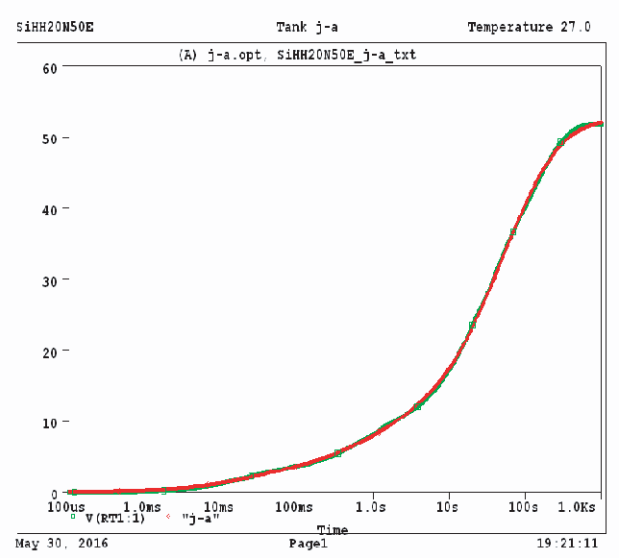

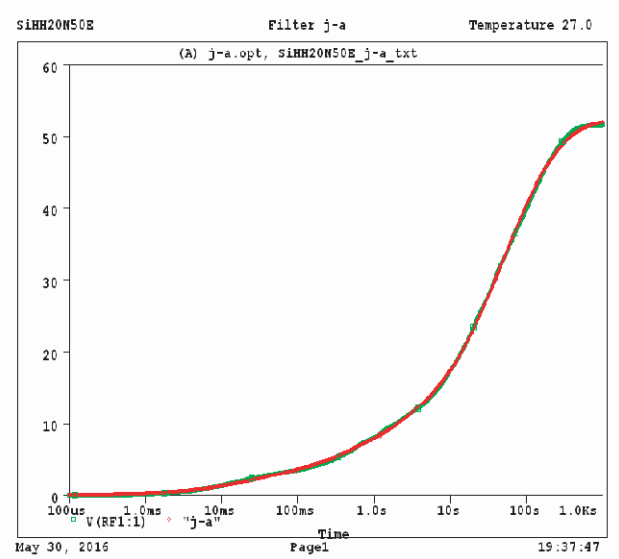

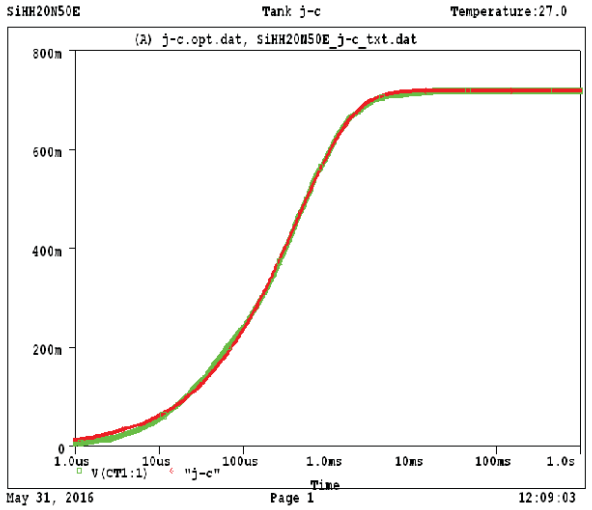

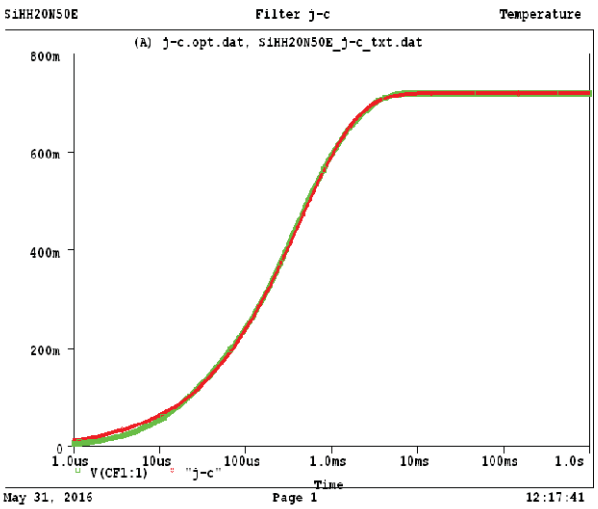

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