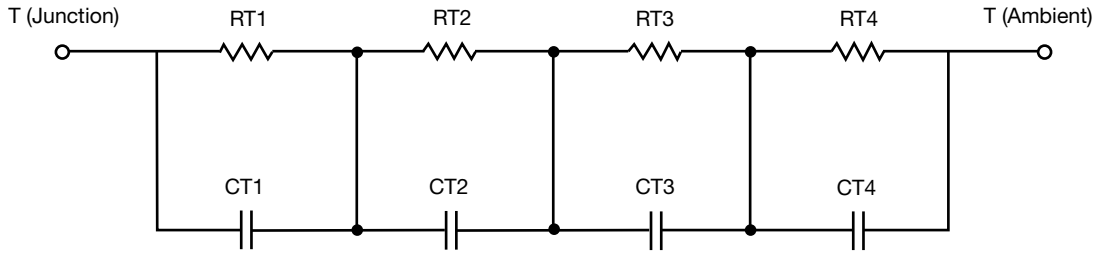
R-C Thermal Model Parameters

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 P-SPICE, 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 P-SPICE 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 P-SPICE Platform”.

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	21.1853	426.7569m	N/A
RT2	19.4152	1.1308	N/A
RT3	9.1782	654.8209m	N/A
RT4	31.1504	996.1337m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	531.1704m	62.4699m	N/A
CT2	20.5977m	7.1302m	N/A
CT3	2.1870m	641.5843u	N/A
CT4	1.5348	14.4351m	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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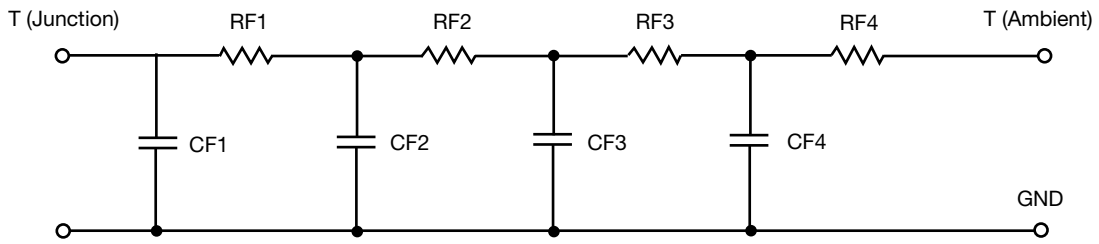
R-C THERMAL MODEL FOR FILTER CONFIGURATION



R-C VALUES FOR FILTER CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RF1	12.3746	876.1498m	N/A
RF2	20.2497	1.5119	N/A
RF3	32.3316	789.0007m	N/A
RF4	15.2384	25.5105m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	2.1775m	619.7165u	N/A
CF2	23.3341m	3.6926m	N/A
CF3	506.5118m	12.0642m	N/A
CF4	713.6197m	111.0233u	N/A

Note

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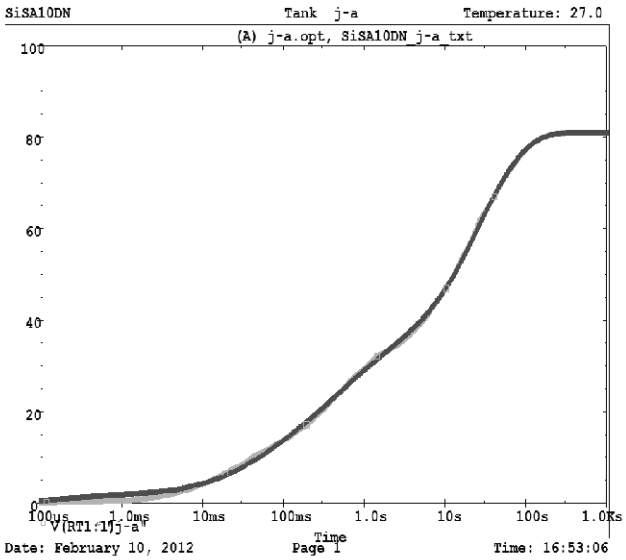

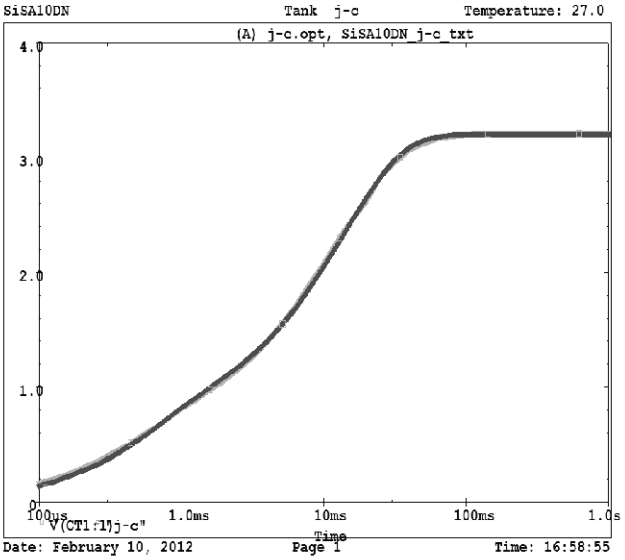

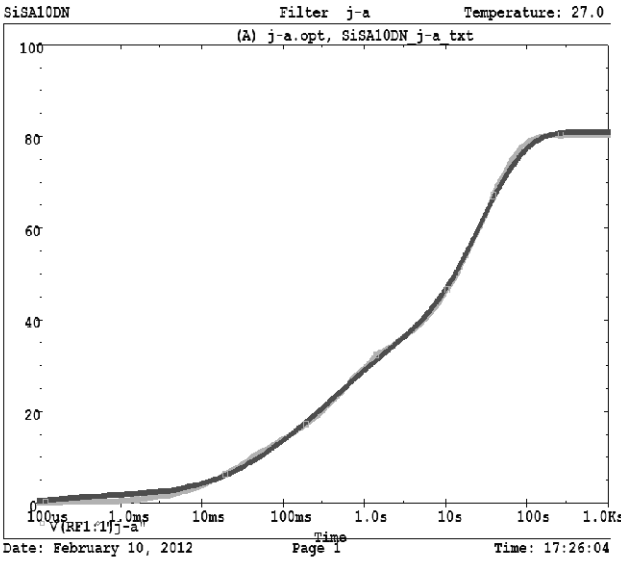

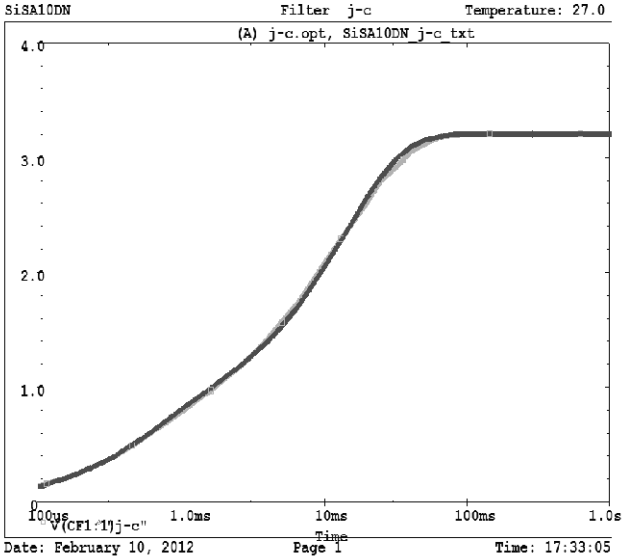

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