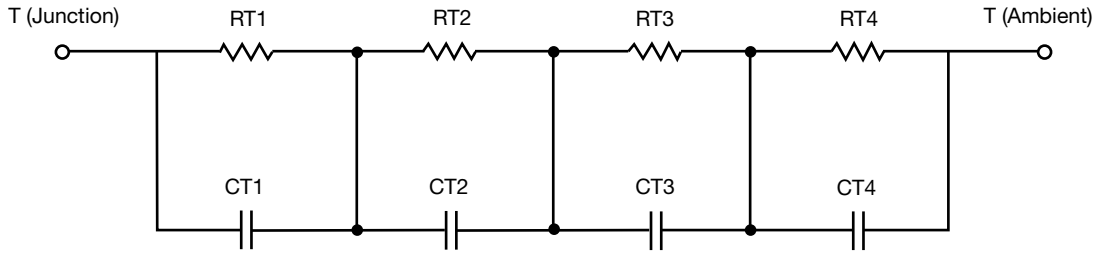
R-C Thermal Model Parameters

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	53.7414	N/A	9.0726
RT2	16.4581	N/A	10.3990
RT3	29.0235	N/A	9.1713
RT4	10.4339	N/A	1.3571
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.2423	N/A	211.9633m
CT2	180.1575m	N/A	20.9625m
CT3	15.0899m	N/A	6.5001m
CT4	2.3833m	N/A	397.1449u

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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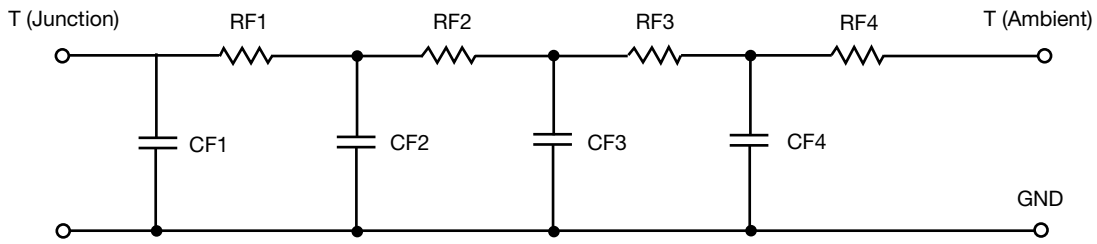
R-C THERMAL MODEL FOR FILTER CONFIGURATION



R-C VALUES FOR FILTER CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RF1	12.5055	N/A	1.4546
RF2	31.8866	N/A	15.0520
RF3	20.2135	N/A	6.9118
RF4	45.0979	N/A	6.5816
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	2.0154m	N/A	344.3671u
CF2	10.9909m	N/A	4.5236m
CF3	213.9404m	N/A	31.1061m
CF4	1.2995	N/A	236.9089m

Note

- n/a indicates not applicable

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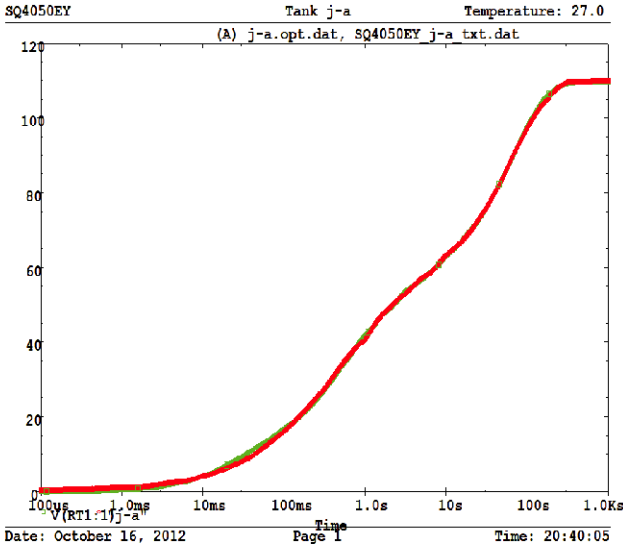

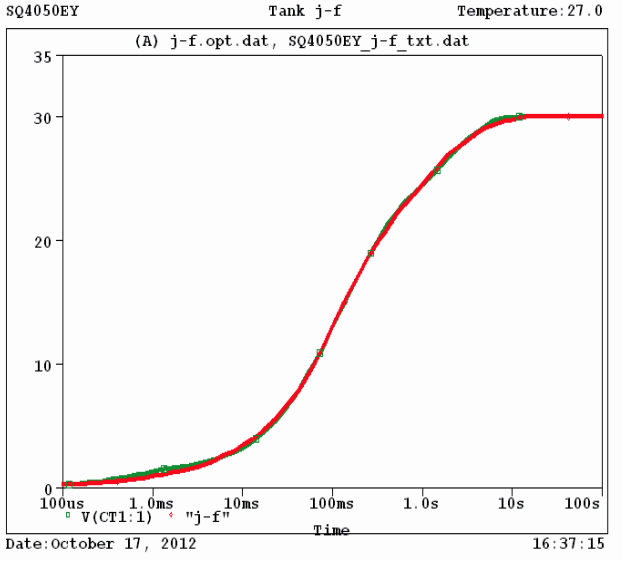

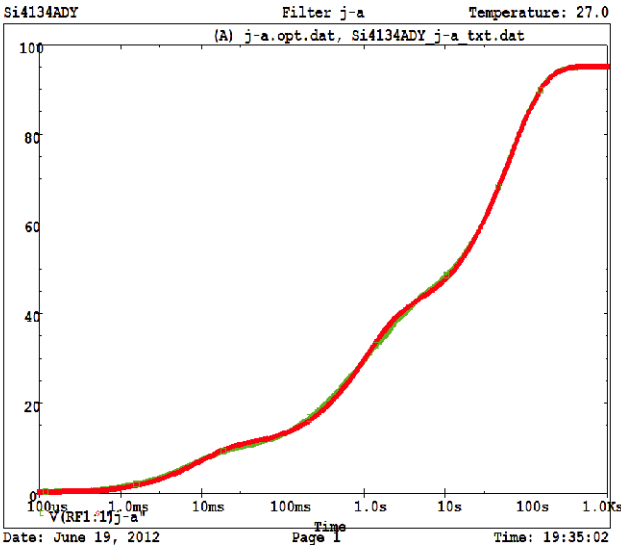

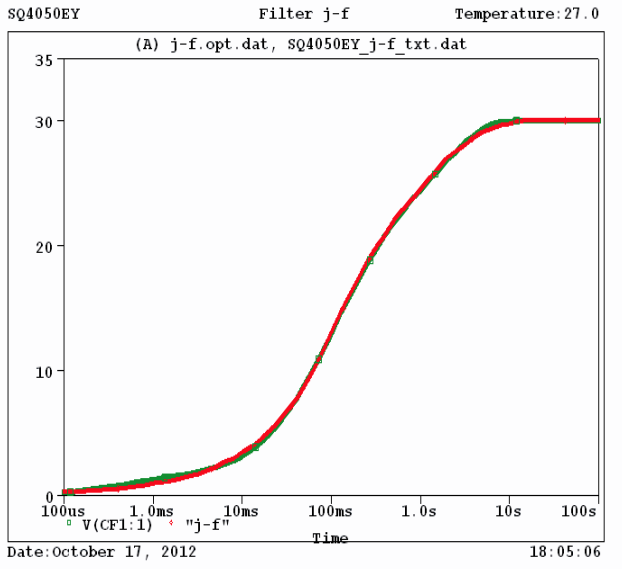

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