

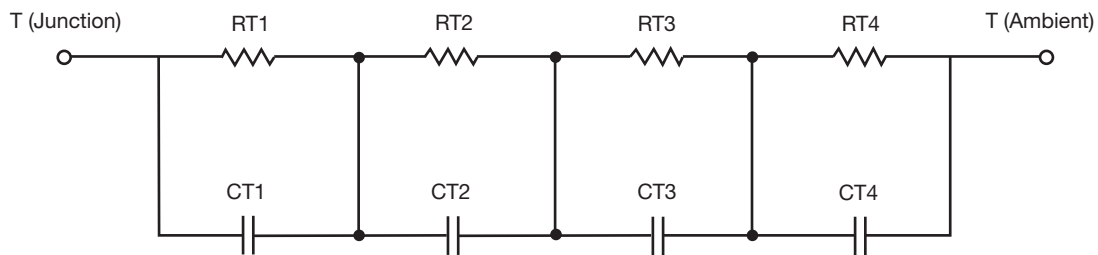
R-C Thermal Model Parameters

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	2.0276	589.0666m	N/A
RT2	3.8855	469.9858m	N/A
RT3	4.2170	451.3857m	N/A
RT4	29.8699	189.5619m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	14.4959m	18.0892m	N/A
CT2	166.7498m	3.9141m	N/A
CT3	1.1102	217.4767m	N/A
CT4	2.3680	2.0396m	N/A

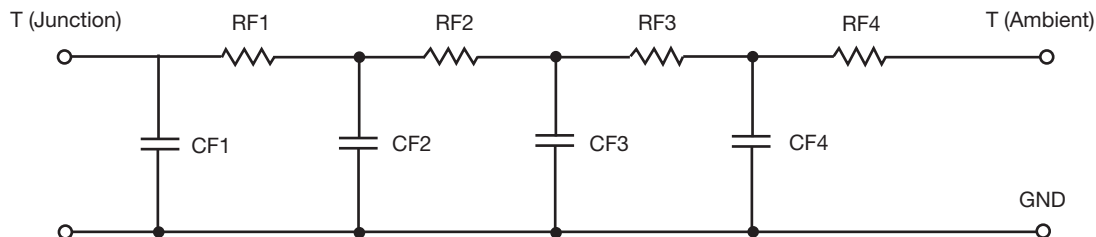
Note

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.



R-C THERMAL MODEL FOR FILTER CONFIGURATION



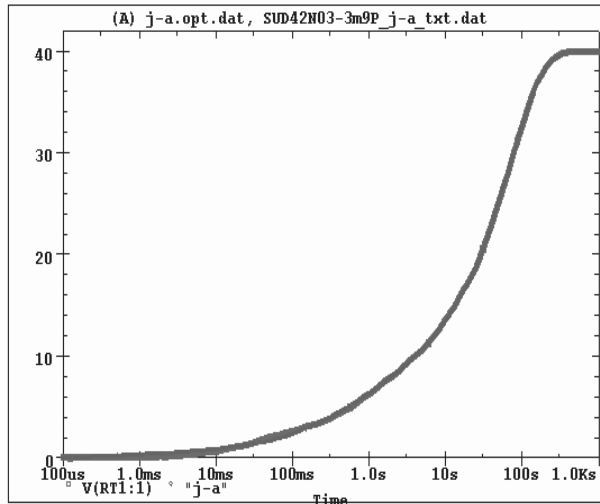
R-C VALUES FOR FILTER CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RF1	2.3413	375.0085m	N/A
RF2	6.2846	585.6418m	N/A
RF3	11.9201	553.6375m	N/A
RF4	19.4540	185.7122m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	12.2135m	1.0723m	N/A
CF2	133.3701m	3.3664m	N/A
CF3	1.2507	35.4019m	N/A
CF4	1.8138	739.6609m	N/A

Note

N/A indicates not applicable

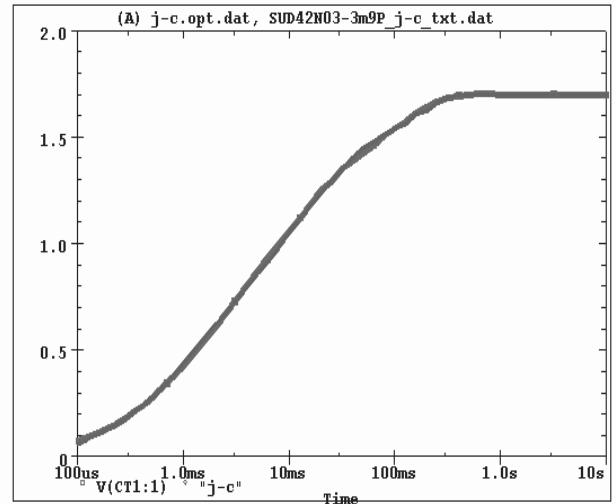


SUD42N03-3m9P Tank j-a Temperature: 27.0



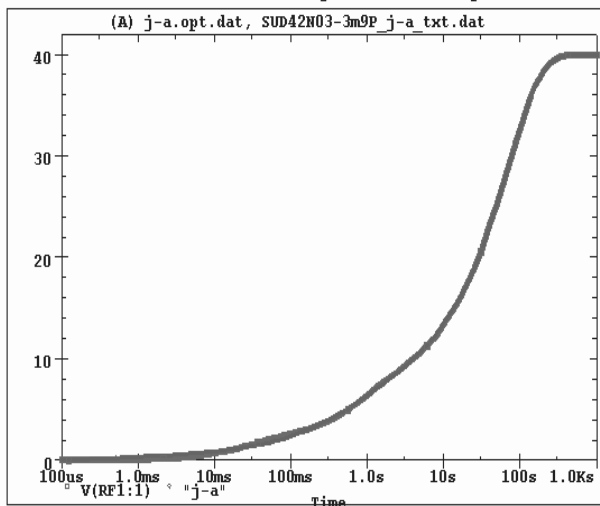
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SUD42N03-3m9P Tank j-c Temperature: 27.0



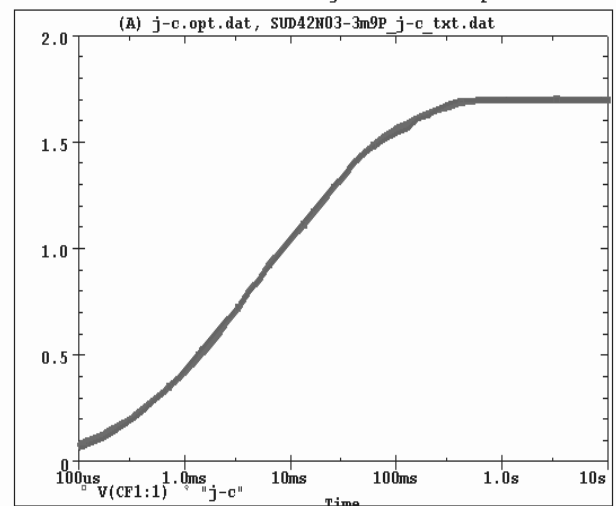
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SUD42N03-3m9P Filter j-a Temperature: 27.0



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SUD42N03-3m9P Filter j-c Temperature: 27.0



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