



# 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	33.9699	417.1839m	n/a
RT2	3.8307	327.8098m	n/a
RT3	12.6263	455.2337m	n/a
RT4	12.5731	699.7725m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	2.7403	21.9333m	n/a
CT2	2.3761m	9.5541m	n/a
CT3	1.0007	540.3794u	n/a
CT4	29.3613m	4.2484m	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



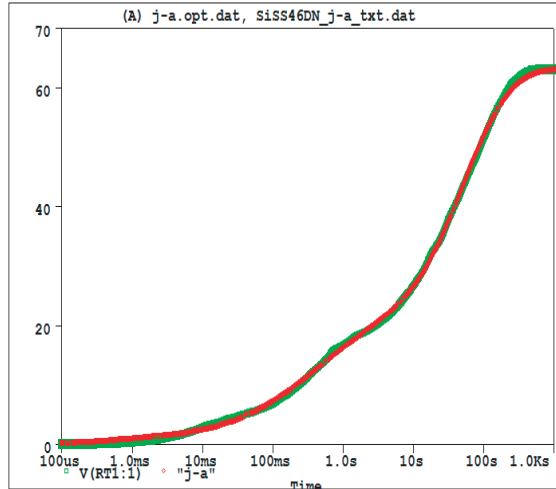
R-C VALUES FOR FILTER CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RF1	4.7190	380.8398m	n/a
RF2	12.0850	766.3667m	n/a
RF3	18.7170	747.6429m	n/a
RF4	27.4790	5.1506m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	2.4403m	297.4377u	n/a
CF2	26.0428m	1.1511m	n/a
CF3	609.5574m	5.5792m	n/a
CF4	2.4754	185.9110m	n/a

Note

- n/a indicates not applicable

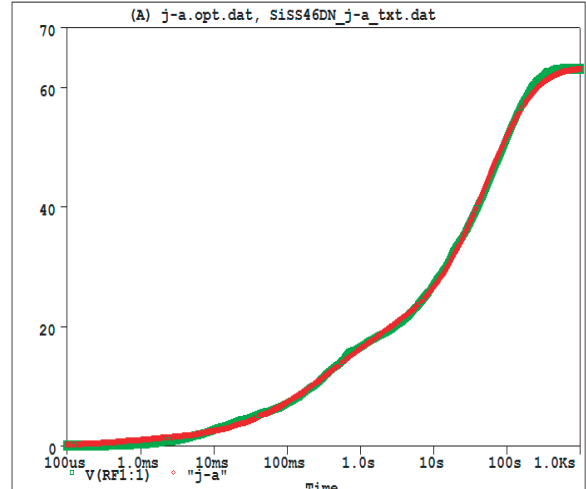


SiSS46DN Tank j-a Temperature: 27.0



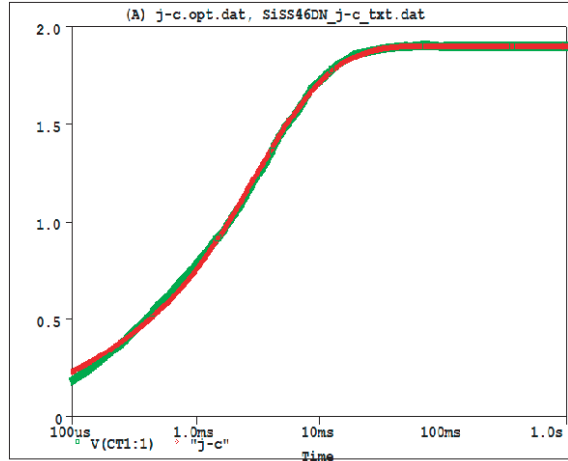
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SiSS46DN Filter j-a Temperature: 27.0



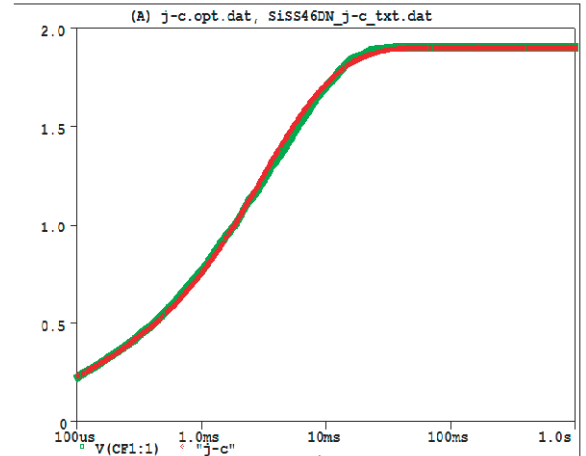
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SiSS46DN Tank j-c Temperature: 27.0



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SiSS46DN Filter j-c Temperature: 27.0



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