

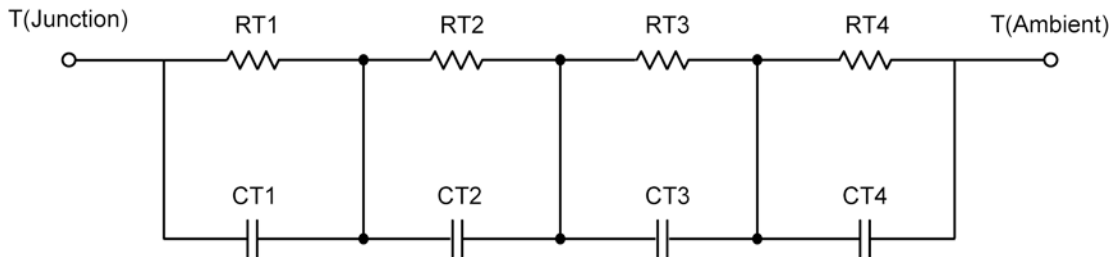
R-C Thermal Model Parameters

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.

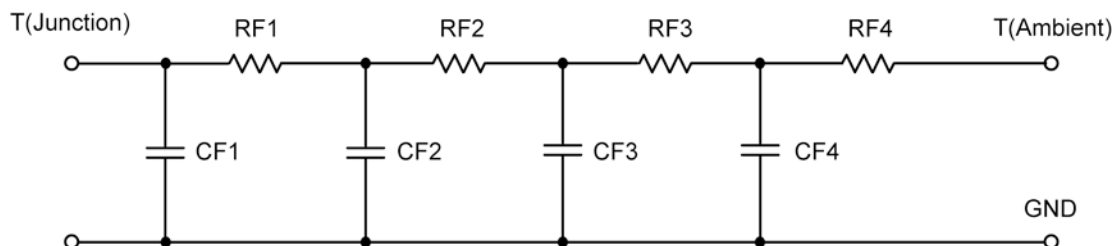
These RC values can be used in the P-SPICE simulation to evaluate the thermal behavior of the MOSFET junction temperature under a defined power profile. These techniques are described in Application Note AN609, "Thermal Simulation of Power MOSFETs on the P-Spice Platform."

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION				
Thermal Resistance (°C/W)				
Junction to	Ambient CH-1	Ambient CH-2	Case CH-1	Case CH-2
RT1	18.7782	21.2358	719.3808 m	431.7870 m
RT2	5.5394	5.2959	3.5404	2.2916
RT3	21.3889	17.4498	945.5192 m	662.7130 m
RT4	44.2935	41.0185	1.8947	1.2139
Thermal Capacitance (Joules/°C)				
Junction to	Ambient CH-1	Ambient CH-2	Case CH-1	Case CH-2
CT1	9.4822 m	29.2501 m	1.9498 m	18.1402 m
CT2	671.5252 u	4.4079 m	7.2565 m	21.7015 m
CT3	107.2256 m	499.0944 m	163.9561 u	391.1266 u
CT4	1.5017	1.8621	2.1310 m	13.2292 m

This document is intended as a SPICE modeling guideline and does not constitute a commercial product data sheet. Designers should refer to the appropriate data sheet of the same number for guaranteed specification limits.

R-C THERMAL MODEL FOR FILTER CONFIGURATION**R-C VALUES FOR FILTER CONFIGURATION**

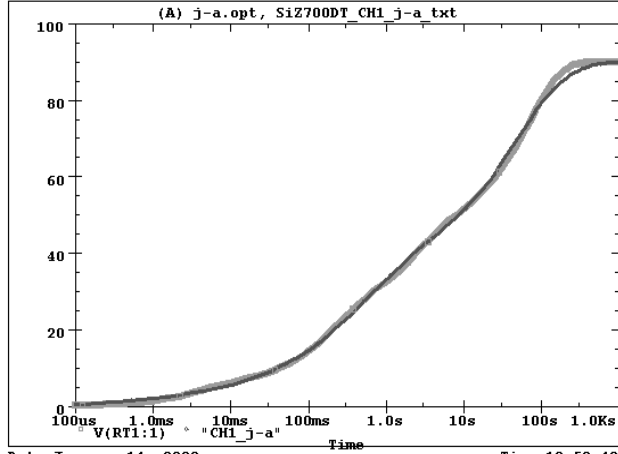
Thermal Resistance ($^{\circ}\text{C}/\text{W}$)				
Junction to	Ambient CH-1	Ambient CH-2	Case CH-1	Case CH-2
RF1	7.9487	5.9283	1.1847	552.8873 m
RF2	25.6968	20.9732	1.6396	2.2431
RF3	21.3108	21.8432	1.5602	527.3127 m
RF4	35.0437	36.2553	2.7155	1.2767
Thermal Capacitance (Joules/ $^{\circ}\text{C}$)				
Junction to	Ambient CH-1	Ambient CH-2	Case CH-1	Case CH-2
CF1	874.0697 u	3.1483 m	122.5962 u	249.9928 u
CF2	12.2432 m	20.7628 m	828.4264 u	4.2109 m
CF3	235.5351 m	270.2771 m	366.3302 u	14.4287 m
CF4	1.8585	1.6348	8.5275 m	8.1428 m

Note

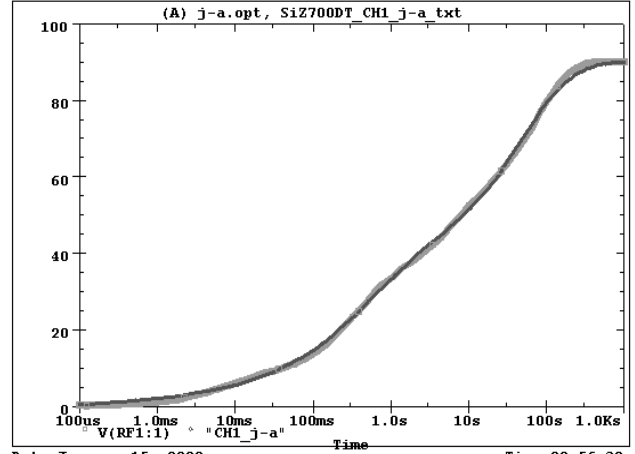
NA indicates not applicable



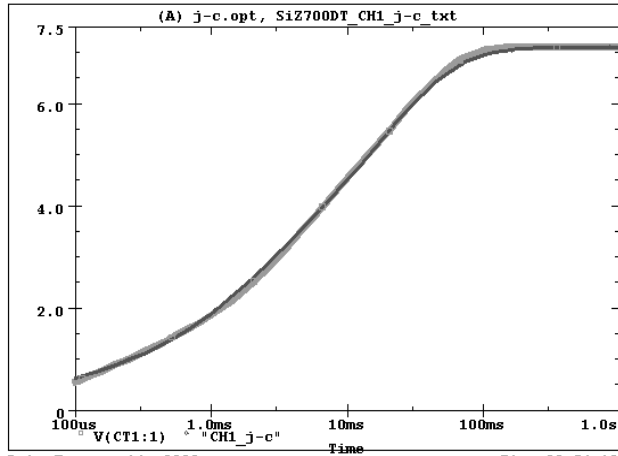
SiZ700DT Channel 1 Tank j-a Temperature:27.0



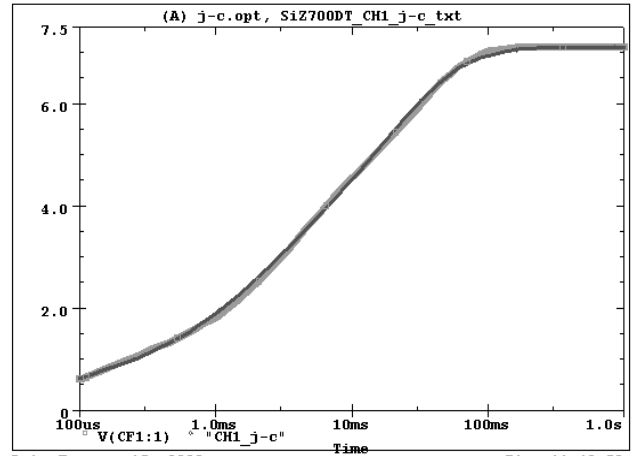
SiZ700DT Channel 1 Filter j-a Temperature:27.0



SiZ700DT Channel 1 Tank j-c Temperature:27.0

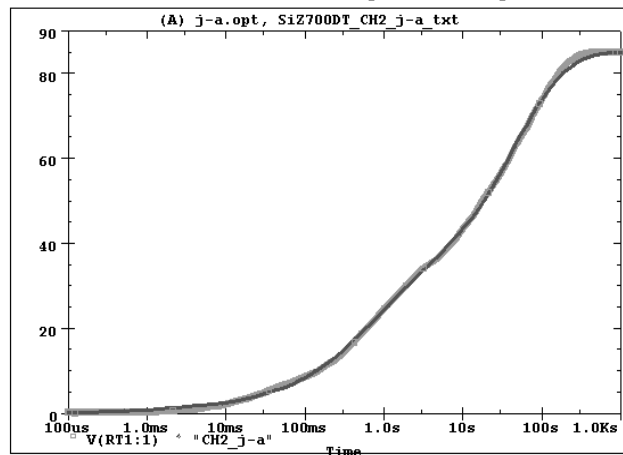


SiZ700DT Channel 1 Filter j-c Temperature:27.0



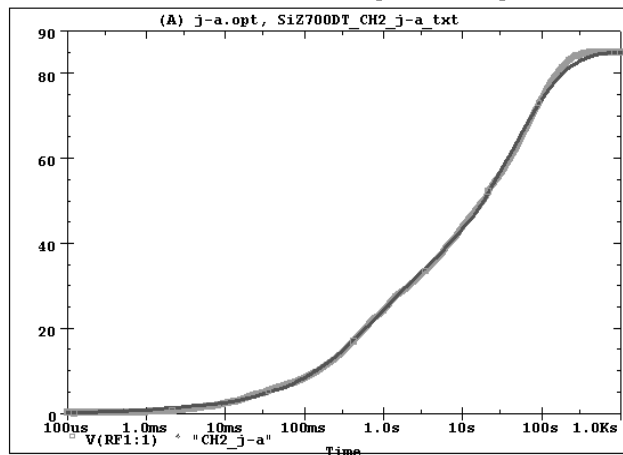


SiZ700DT Channel 2 Tank j-a Temperature:27.0



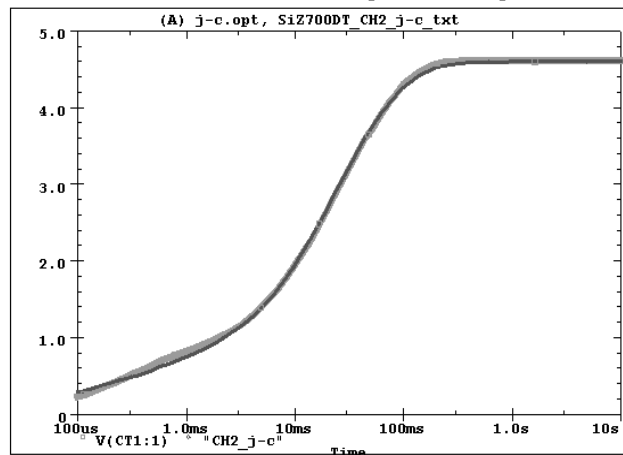
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SiZ700DT Channel 2 Filter j-a Temperature:27.0



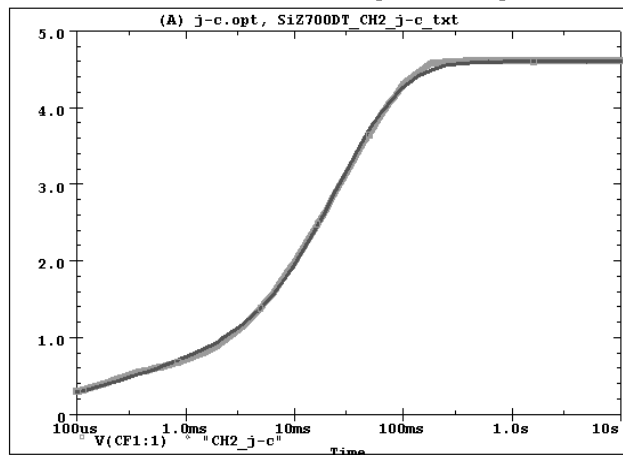
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SiZ700DT Channel 2 Tank j-c Temperature:27.0



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SiZ700DT Channel 2 Filter j-c Temperature:27.0



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