

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

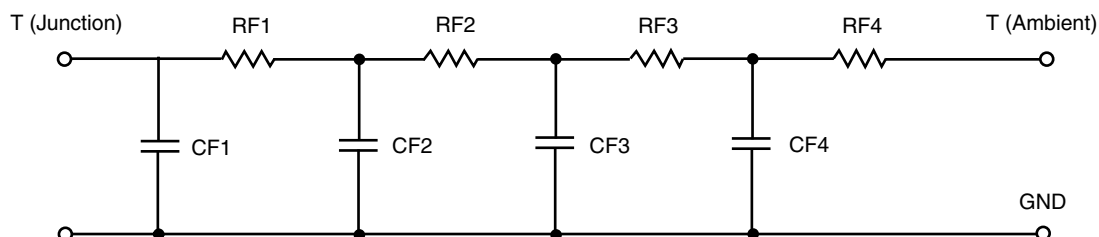


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	47.5579	N/A	22.3419
RT2	53.3526	N/A	9.7556
RT3	5.1241	N/A	32.6045
RT4	68.9654	N/A	10.2980
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	2.0605 m	N/A	698.6079 u
CT2	17.1629 m	N/A	85.5815 u
CT3	61.3874 u	N/A	2.0611 m
CT4	1.2378	N/A	26.6171 m

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**

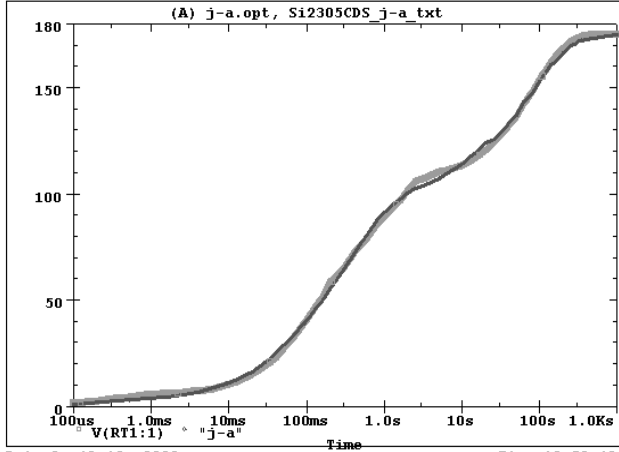
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RF1	12.2802	N/A	13.7178
RF2	57.0881	N/A	38.4978
RF3	38.5569	N/A	20.1645
RF4	67.0748	N/A	2.6199
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	378.3869 u	N/A	73.3749 u
CF2	1.9897 m	N/A	507.6357 u
CF3	22.5230 m	N/A	4.2985 m
CF4	1.2503	N/A	183.7699 m

Note

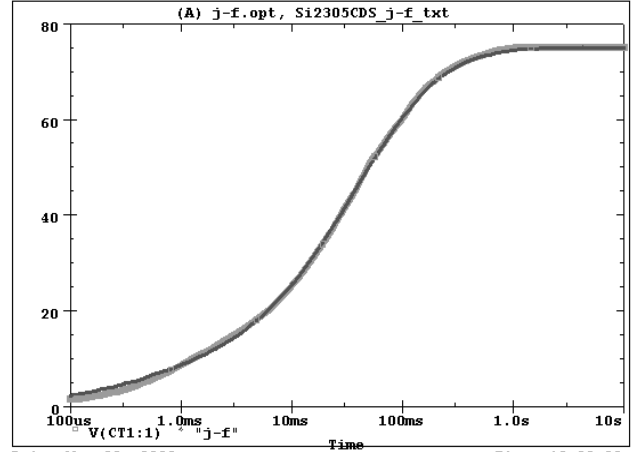
N/A indicates not applicable



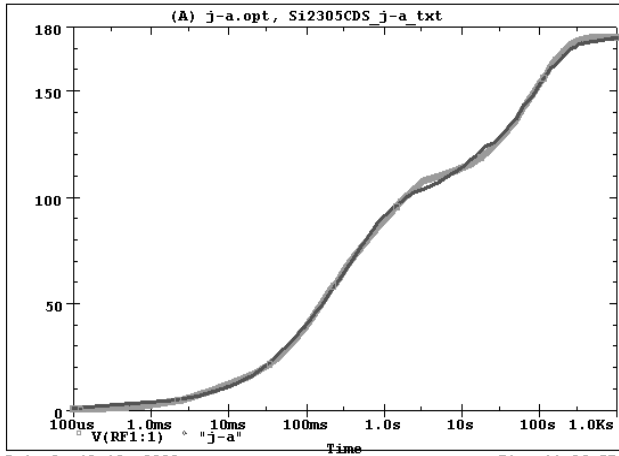
Si2305CDS Tank j-a Temperature:27.0



Si2305CDS Tank j-f Temperature: 27.0



Si2305CDS Filter j-a Temperature:27.0



Si2305CDS Filter j-f Temperature: 27.0

