

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



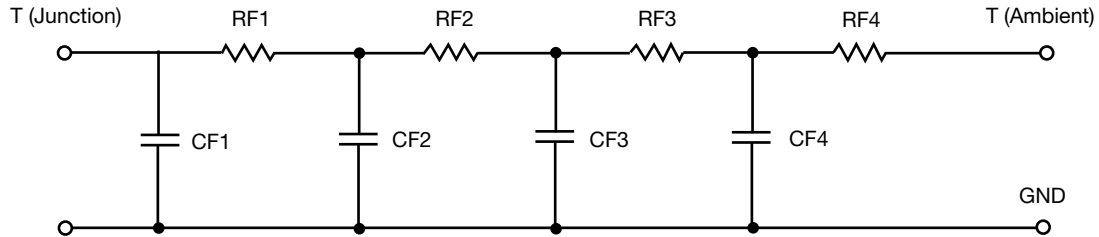
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	6.9899	315.5540m	N/A
RT2	4.9677	308.7342m	N/A
RT3	2.2235	456.7094m	N/A
RT4	35.5405	320.9386m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	886.1998m	142.0688m	N/A
CT2	112.0539m	2.4750m	N/A
CT3	10.1737m	78.6234m	N/A
CT4	2.2950	84.7243m	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



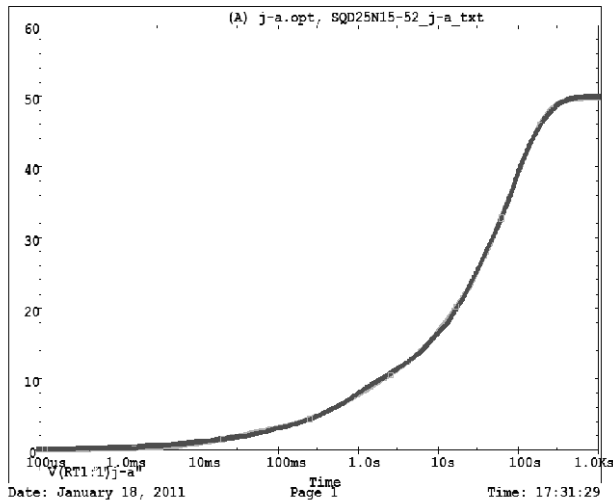
R-C VALUES FOR FILTER CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RF1	2.8455	366.0449m	N/A
RF2	7.7821	658.8764m	N/A
RF3	21.0565	252.5279m	N/A
RF4	18.3021	113.7571m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	9.5776m	2.4258m	N/A
CF2	102.9407m	29.2556m	N/A
CF3	1.1250	452.6803u	N/A
CF4	3.1568	42.3989m	N/A

Note

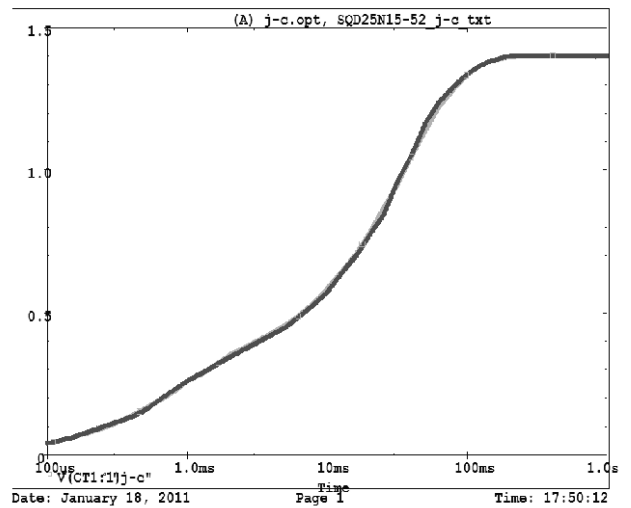
N/A indicates not applicable



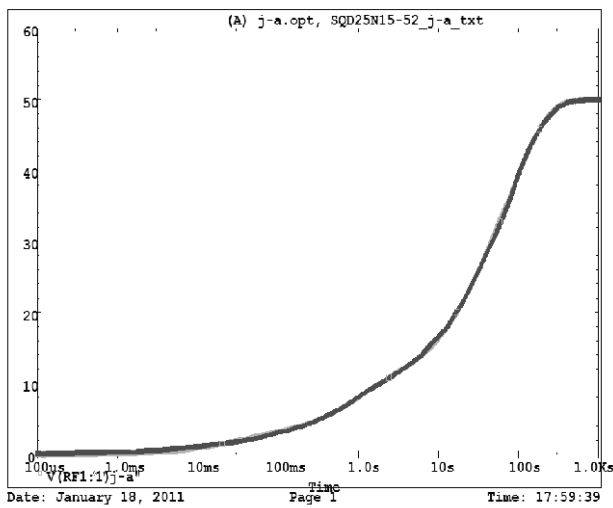
SQD25N15-52 Tank j-a Temperature: 27.0



SQD25N15-52 Tank j-c Temperature: 27.0



SQD25N15-52 Filter j-a Temperature: 27.0



SQD25N15-52 Filter j-c Temperature: 27.0

