

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



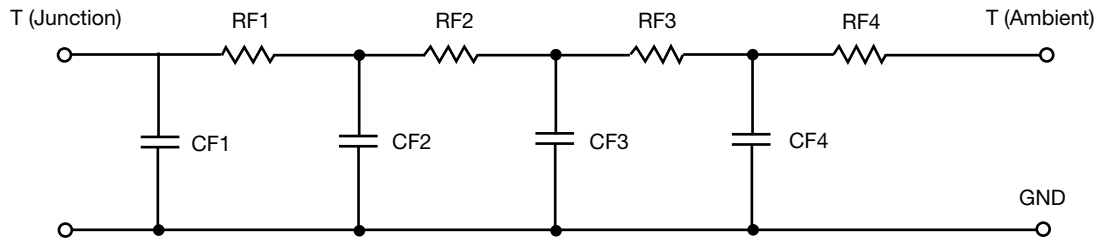
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	9.5570	203.5420m	N/A
RT2	5.1600	584.5354m	N/A
RT3	15.6182	1.5925	N/A
RT4	50.3701	414.7089m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	365.2326m	267.0436u	N/A
CT2	3.8693m	5.6005m	N/A
CT3	23.3517m	5.4385m	N/A
CT4	1.4119	693.5734u	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



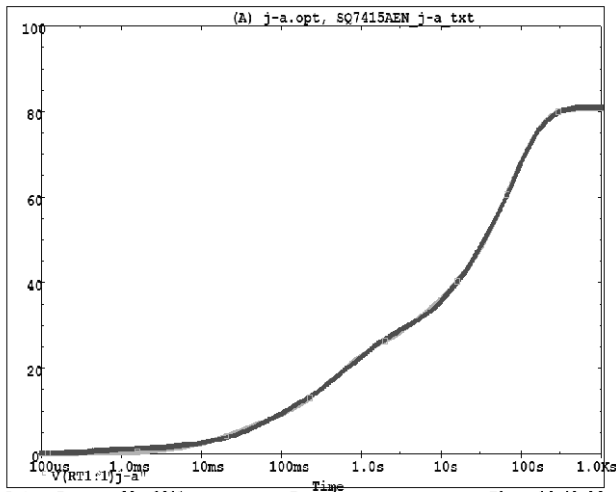
R-C VALUES FOR FILTER CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RF1	6.4898	713.3943m	N/A
RF2	15.7440	1.6394	N/A
RF3	12.3625	60.3594m	N/A
RF4	46.1013	379.9553m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	3.1105m	272.2410u	N/A
CF2	17.7826m	2.4484m	N/A
CF3	240.9698m	7.7255m	N/A
CF4	1.2560	15.1584m	N/A

Note

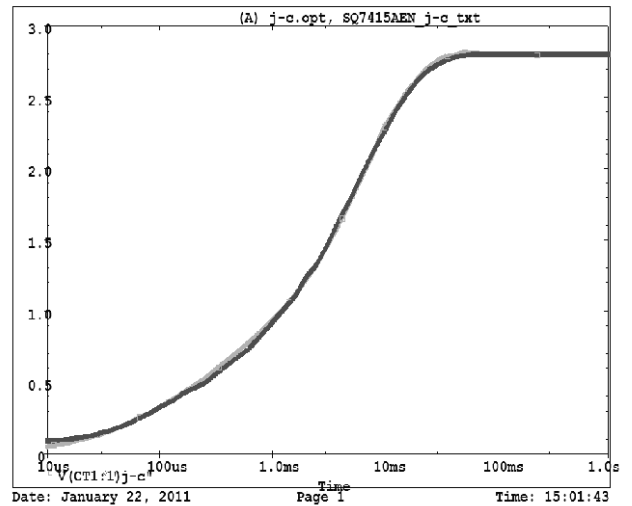
N/A indicates not applicable



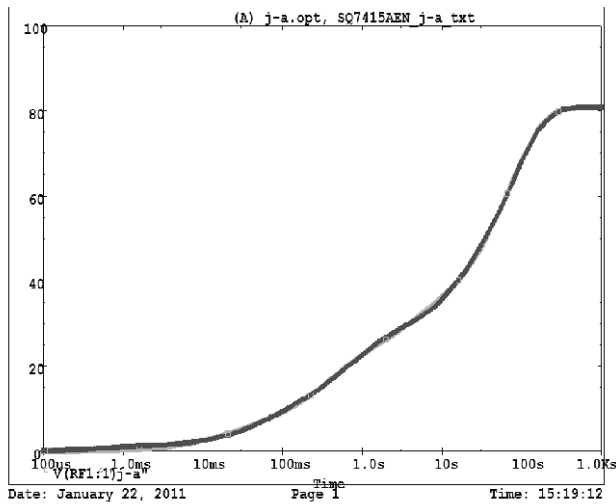
SQ7415AEN Tank j-a Temperature: 27.0



SQ7415AEN Tank j-c Temperature: 27.0



SQ7415AEN Filter j-a Temperature: 27.0



SQ7415AEN Filter j-c Temperature: 27.0

