

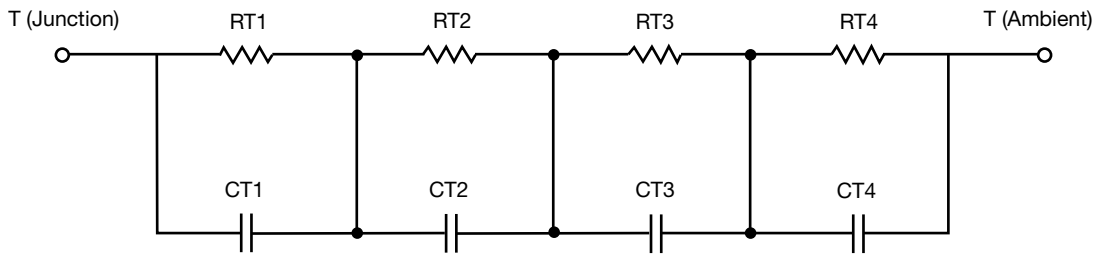
R-C Thermal Model Parameters

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	17.0524	554.5528m	n/a
RT2	7.9901	609.9782m	n/a
RT3	3.2848	379.2933m	n/a
RT4	39.6727	656.1760m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	576.9884m	90.4132m	n/a
CT2	86.0411m	37.3208m	n/a
CT3	12.2050m	3.1049m	n/a
CT4	2.8058	75.7109m	n/a

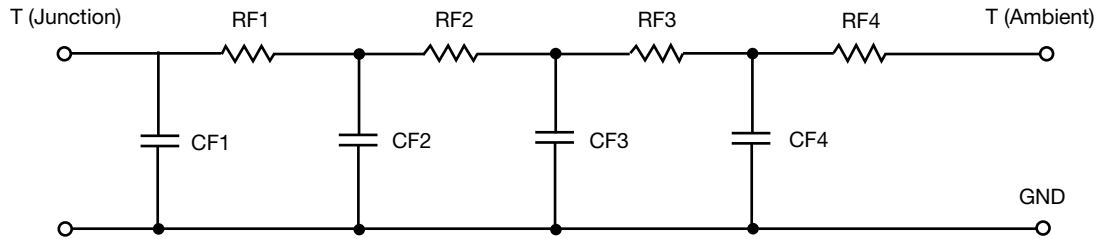
Note

- 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



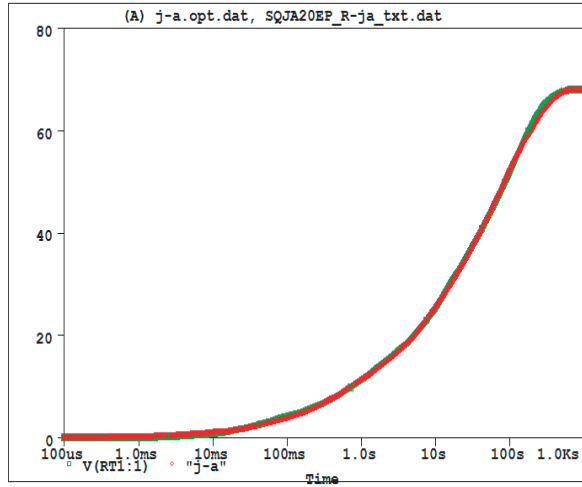
R-C VALUES FOR FILTER CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RF1	3.6639	608.4173m	n/a
RF2	10.1911	1.1241	n/a
RF3	21.7980	451.7770m	n/a
RF4	32.3470	15.7060m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	9.0213m	3.1932m	n/a
CF2	57.8302m	21.7378m	n/a
CF3	440.4781m	6.9322m	n/a
CF4	2.8976	362.1102m	n/a

Note

- n/a indicates not applicable

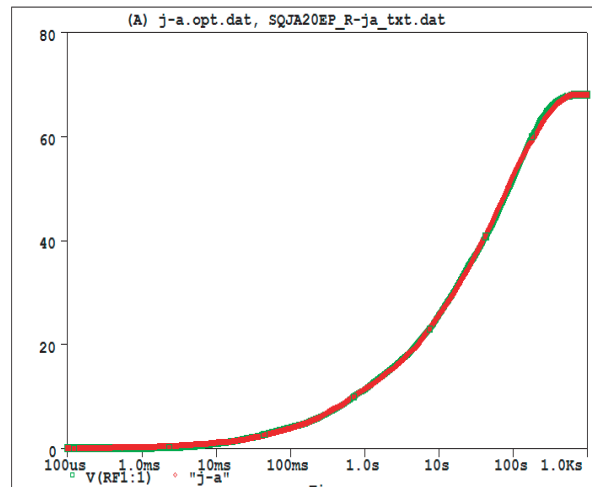


SQJA20EP Tank j-a Temperature 27.0



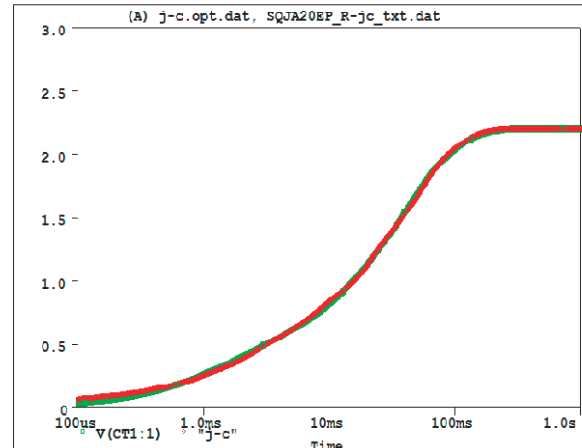
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SQJA20EP Filter j-a Temperature 27.0



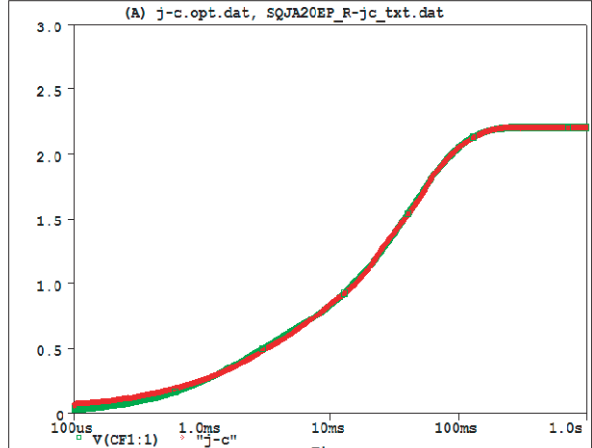
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SQJA20EP Tank j-c Temperature 27.0



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SQJA20EP Filter j-c Temperature 27.0



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