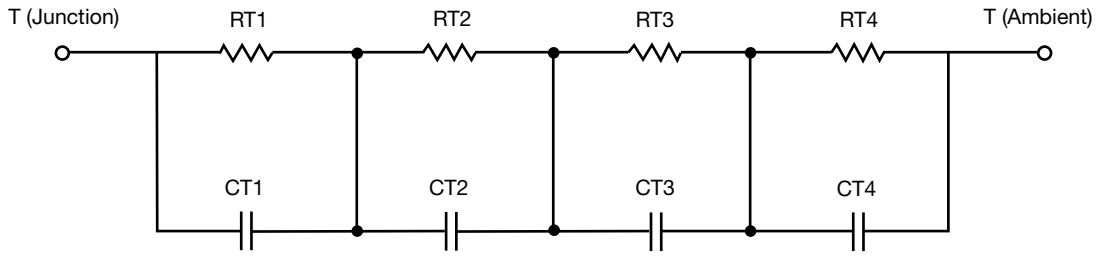
R-C Thermal Model Parameters

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	24.8833	405.8374m	n/a
RT2	6.1848	47.9806m	n/a
RT3	3.6350	368.3575m	n/a
RT4	19.9666	24.6971m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	4.5855	3.8477m	n/a
CT2	232.7068m	120.3738u	n/a
CT3	15.3143m	714.0859u	n/a
CT4	1.2515	1.6587m	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.

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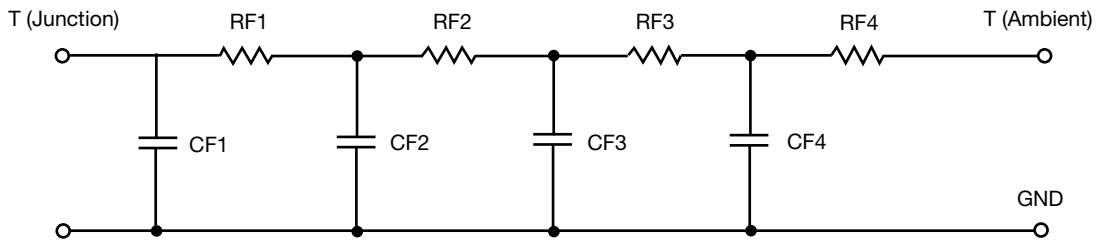
R-C THERMAL MODEL FOR FILTER CONFIGURATION



R-C VALUES FOR FILTER CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RF1	3.8627	160.9513m	n/a
RF2	8.2431	383.1803m	n/a
RF3	24.5906	241.6664m	n/a
RF4	17.6834	64.0674m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	11.7447m	186.4905u	n/a
CF2	156.8870m	519.4810u	n/a
CF3	780.3458m	2.6945m	n/a
CF4	4.2158	50.8461m	n/a

Note

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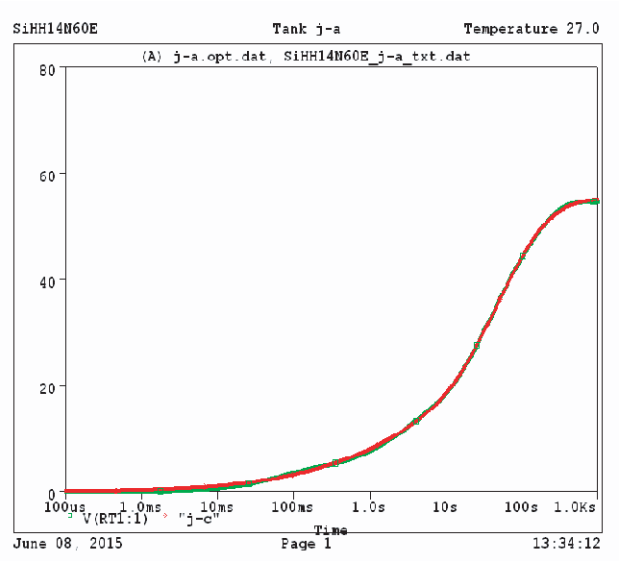

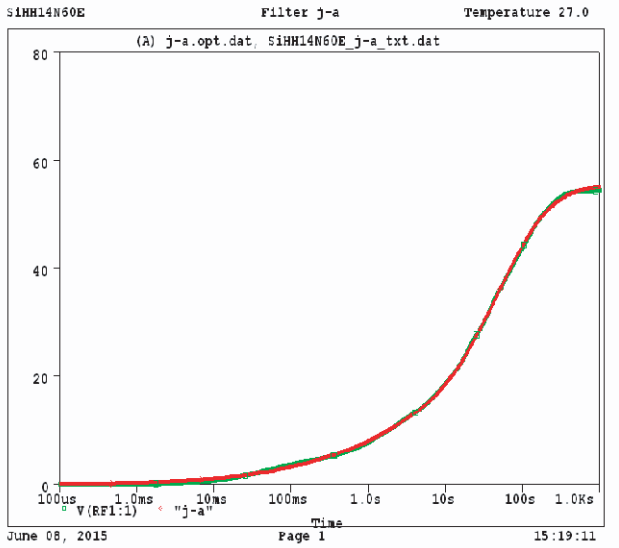

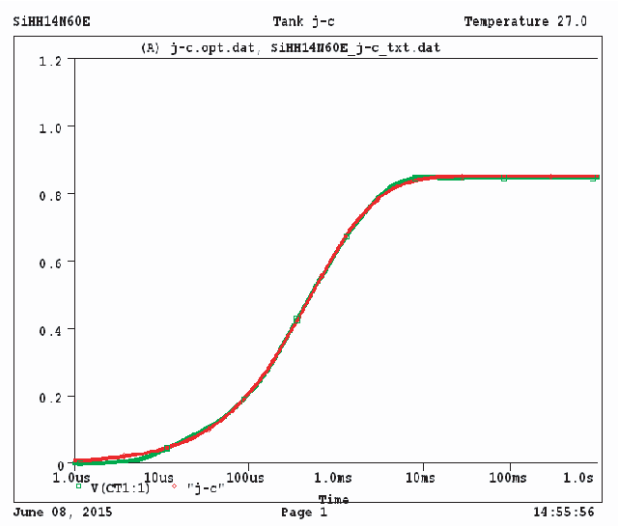

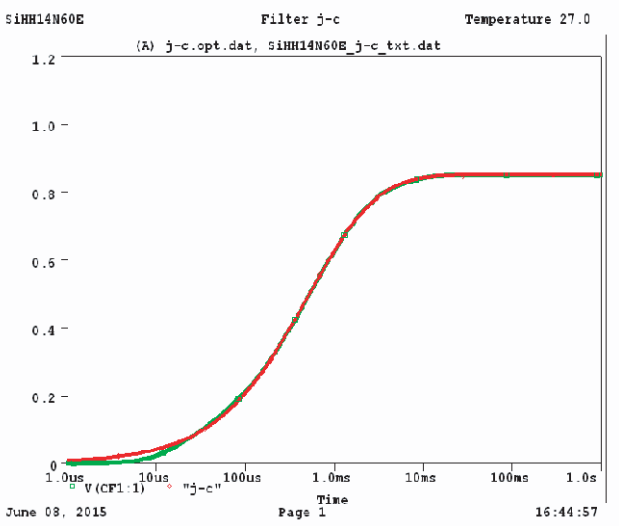

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