



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	5.5185	2.2335	N/A
RT2	41.8118	1.5319	N/A
RT3	26.7947	2.7823	N/A
RT4	10.8750	2.9523	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	127.0280u	617.7577u	N/A
CT2	2.2008	65.0530u	N/A
CT3	1.2514m	2.3875m	N/A
CT4	104.9407m	611.1140u	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	11.0165	3.1611	N/A
RF2	24.3371	2.4414	N/A
RF3	11.1651	2.1043	N/A
RF4	38.4813	1.7932	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	223.3908u	71.7225u	N/A
CF2	1.7041m	257.3113u	N/A
CF3	232.6128m	369.3748u	N/A
CF4	2.2784	332.9593u	N/A

Note

- n/a indicates not applicable

