

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	2.0752	436.3797 m	N/A
RT2	10.4848	1.8878	N/A
RT3	11.9173	44.3824 m	N/A
RT4	56.5227	31.4379 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	743.6434 u	1.1671 m	N/A
CT2	18.2640 m	6.7675 m	N/A
CT3	134.5249 m	13.3568 m	N/A
CT4	1.2297	4.5861 m	N/A

This document is intended as a SPICE modeling guideline and does not constitute a commercial product data sheet. Designers should refer to the appropriate data sheet 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	2.2732	567.8955 m	N/A
RF2	12.3449	999.8448 m	N/A
RF3	12.5493	785.7268 m	N/A
RF4	53.8326	46.5329 m	N/A
Thermal Capacitance (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	809.6000 u	721.2225 u	N/A
CF2	13.8940 m	4.2291 m	N/A
CF3	103.8667 m	8.9075 m	N/A
CF4	1.1730	474.0288 m	N/A

Note

NA indicates not applicable

