



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	14.7029	541.0096m	n/a
RT2	5.9444	1.3410	n/a
RT3	1.7862	152.0639m	n/a
RT4	47.4083	1.2751	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	107.3289m	1.4299m	n/a
CT2	14.1960m	5.2281m	n/a
CT3	550.3898u	1.1000m	n/a
CT4	1.3364	7.5952m	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	4.3254	482.8285m	n/a
RF2	12.5393	472.1456m	n/a
RF3	14.1304	1.6935	n/a
RF4	38.8078	658.4397m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	1.8899m	590.2401u	n/a
CF2	35.4800m	1.6443u	n/a
CF3	326.7856m	2.8424m	n/a
CF4	1.3118	1.7753m	n/a

Note

- n/a indicates not applicable

