



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	15.3303	430.7178m	n/a
RT2	10.0304	1.2356	n/a
RT3	1.3707	50.5950m	n/a
RT4	57.7356	1.3760	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	112.7209m	1.9047m	n/a
CT2	9.9496m	7.8772m	n/a
CT3	597.0240u	2.1220m	n/a
CT4	1.2270	10.4964m	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	8.9198	458.0079m	n/a
RF2	13.6377	407.2356m	n/a
RF3	18.1386	1.6617	n/a
RF4	44.1144	566.2969m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	4.5782m	1.1594m	n/a
CF2	40.3460m	4.9217u	n/a
CF3	435.7574m	4.1225m	n/a
CF4	1.2168	25.0143u	n/a

Note

- n/a indicates not applicable

