



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	465.4000m	240.4633m	n/a
RT2	2.0020	42.1887m	n/a
RT3	13.8871	176.1053m	n/a
RT4	23.6455	140.2371m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	20.9664m	138.9037m	n/a
CT2	509.1683m	10.8486m	n/a
CT3	3.8354	53.8353m	n/a
CT4	5.0606	25.3478m	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	344.4546m	207.2046m	n/a
RF2	1.7339	252.6072m	n/a
RF3	13.6319	117.1334m	n/a
RF4	24.1818	23.2679m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	28.0111m	8.2659m	n/a
CF2	117.4068m	23.0751m	n/a
CF3	1.4887	168.2906m	n/a
CF4	1.8461	1.3775	n/a

Note

- n/a indicates not applicable

