



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	2.7945	581.8074m	n/a
RT2	14.9176	536.3343m	n/a
RT3	12.9470	48.3583m	n/a
RT4	50.3409	1.2335	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.6328m	966.5861u	n/a
CT2	21.5942m	16.6929m	n/a
CT3	455.4681m	123.6103m	n/a
CT4	1.2998	7.0607m	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	2.7791	713.3791m	n/a
RF2	17.1692	1.5932	n/a
RF3	22.1101	37.6622m	n/a
RF4	38.9416	55.7587m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	1.3190m	828.9557u	n/a
CF2	18.5717m	3.9278m	n/a
CF3	364.2352m	58.5495m	n/a
CF4	1.2344	1.3698	n/a

Note

- n/a indicates not applicable

