



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	12.3600	80.6002m	n/a
RT2	1.8345	204.9618m	n/a
RT3	1.5580	360.7124m	n/a
RT4	24.2474	103.7257m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	2.2280	6.8581m	n/a
CT2	1.0327	36.5371m	n/a
CT3	1.4321m	99.7272m	n/a
CT4	5.5384	960.8792m	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	1.6294	110.2016m	n/a
RF2	4.3313	251.5542m	n/a
RF3	19.5553	278.1927m	n/a
RF4	14.4841	110.0514m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	1.5694m	5.0353m	n/a
CF2	676.5647m	18.1438m	n/a
CF3	930.7995m	54.9919m	n/a
CF4	7.5862	504.9728m	n/a

Note

- n/a indicates not applicable

