



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	2.2669	314.0575m	n/a
RT2	36.6716	460.5808m	n/a
RT3	218.5198m	46.9361m	n/a
RT4	842.9802m	178.4256m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	947.9753m	2.1633m	n/a
CT2	2.4830	22.2268m	n/a
CT3	5.8236m	12.6689m	n/a
CT4	522.0409m	400.8109m	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	717.8000m	394.8125m	n/a
RF2	3.4451	133.9539m	n/a
RF3	11.0079	333.9319m	n/a
RF4	24.8292	137.3017m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	7.9731m	1.6318m	n/a
CF2	575.1189m	17.9187m	n/a
CF3	1.3486	2.0904m	n/a
CF4	1.3248	530.7123m	n/a

Note

- n/a indicates not applicable

