



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	5.1391	468.8769m	n/a
RT2	55.5142	384.1149m	n/a
RT3	13.0782	645.8046m	n/a
RT4	7.2685	901.2036m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	6.3436m	31.8246m	n/a
CT2	1.2901	40.6569m	n/a
CT3	34.0279m	1.0348m	n/a
CT4	509.5252m	14.1202m	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	1.5607	607.1727m	n/a
RF2	13.0173	531.3923m	n/a
RF3	12.6521	920.0347m	n/a
RF4	53.7699	341.4003m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	745.0322u	860.4459u	n/a
CF2	12.7164m	3.0720m	n/a
CF3	115.7471m	5.5543m	n/a
CF4	1.1579	1.1367m	n/a

Note

- n/a indicates not applicable

