



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	12.4579	405.3475m	n/a
RT2	7.9761	531.1154m	n/a
RT3	2.7332	501.3474m	n/a
RT4	26.9332	655.7343m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	8.9210	27.8249m	n/a
CT2	151.3099m	1.3534m	n/a
CT3	11.9454m	9.8135m	n/a
CT4	1.9213	209.5236m	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	4.2296	660.9122m	n/a
RF2	8.0022	770.1973m	n/a
RF3	15.5699	240.5536m	n/a
RF4	22.1126	425.8305m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	15.6523m	1.0334m	n/a
CF2	170.0881m	6.7655m	n/a
CF3	1.1541	82.9617m	n/a
CF4	1.1917	247.5079m	n/a

Note

- n/a indicates not applicable

