



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	35.8641	80.8346m	n/a
RT2	1.4017	191.5950m	n/a
RT3	7.4243	300.1760m	n/a
RT4	5.3099	427.3944m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.0936	291.2683m	n/a
CT2	2.2116m	4.5928m	n/a
CT3	361.3969m	126.1031m	n/a
CT4	38.0919m	155.4870m	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	1.4070	215.7967m	n/a
RF2	7.0825	437.9970m	n/a
RF3	11.5452	201.0842m	n/a
RF4	29.9653	145.1221m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	1.4322m	4.1832m	n/a
CF2	31.8399m	51.7378m	n/a
CF3	278.9926m	36.4285m	n/a
CF4	968.4209m	16.0622m	n/a

Note

- n/a indicates not applicable

