



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	8.2782	11.0831	n/a
RT2	30.3634	3.8285	n/a
RT3	23.2871	11.4483	n/a
RT4	48.0713	8.6401	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	488.7671u	28.8823m	n/a
CT2	5.1950m	311.3524u	n/a
CT3	44.1318m	4.1477m	n/a
CT4	1.4759	6.9441m	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	12.1332	5.3220	n/a
RF2	38.8108	19.4480	n/a
RF3	14.6934	3.8642	n/a
RF4	44.3626	6.3658	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	553.7651u	309.0180u	n/a
CF2	5.2926m	2.1366m	n/a
CF3	114.6461m	5.7175m	n/a
CF4	1.5590	52.6932m	n/a

Note

- n/a indicates not applicable

